

**Letter Report
Pettibone Creek Investigation
North Chicago, Lake County, Illinois
June 21, 2001**

**Prepared for:
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CONTENTS

| <u>Section</u> | | <u>Page</u> |
|----------------|--|-------------|
| 1.0 | INTRODUCTION | 1 |
| 2.0 | SITE BACKGROUND | 2 |
| 2.1 | SITE DESCRIPTION | 2 |
| 2.2 | SITE HISTORY | 4 |
| 3.0 | SITE INVESTIGATION ACTIVITIES | 6 |
| 4.0 | ANALYTICAL RESULTS | 9 |
| 5.0 | ANALYTICAL RESULTS SUMMARY AND CONCLUSIONS | 35 |

Appendix

A VALIDATED ANALYTICAL PACKAGE

FIGURES

| <u>Figure</u> | | <u>Page</u> |
|---------------|-----------------------------|-------------|
| 1 | SITE LOCATION MAP | 3 |
| 2 | SAMPLING LOCATION MAP | 8 |

TABLES

| <u>Table</u> | | <u>Page</u> |
|--------------|---|-------------|
| 1 | SAMPLE DESCRIPTION TABLE | 7 |
| 2 | SUMMARY OF INORGANIC ANALYTICAL RESULTS | 9 |
| 3 | SUMMARY OF ORGANIC ANALYTICAL RESULTS | 10 |
| 4 | COMPARISON OF ORGANIC DATA WITH ERL, ERM, LEL, AND SEL CRITERIA | 13 |
| 5 | HISTORICAL DATA | 15 |

1.0 INTRODUCTION

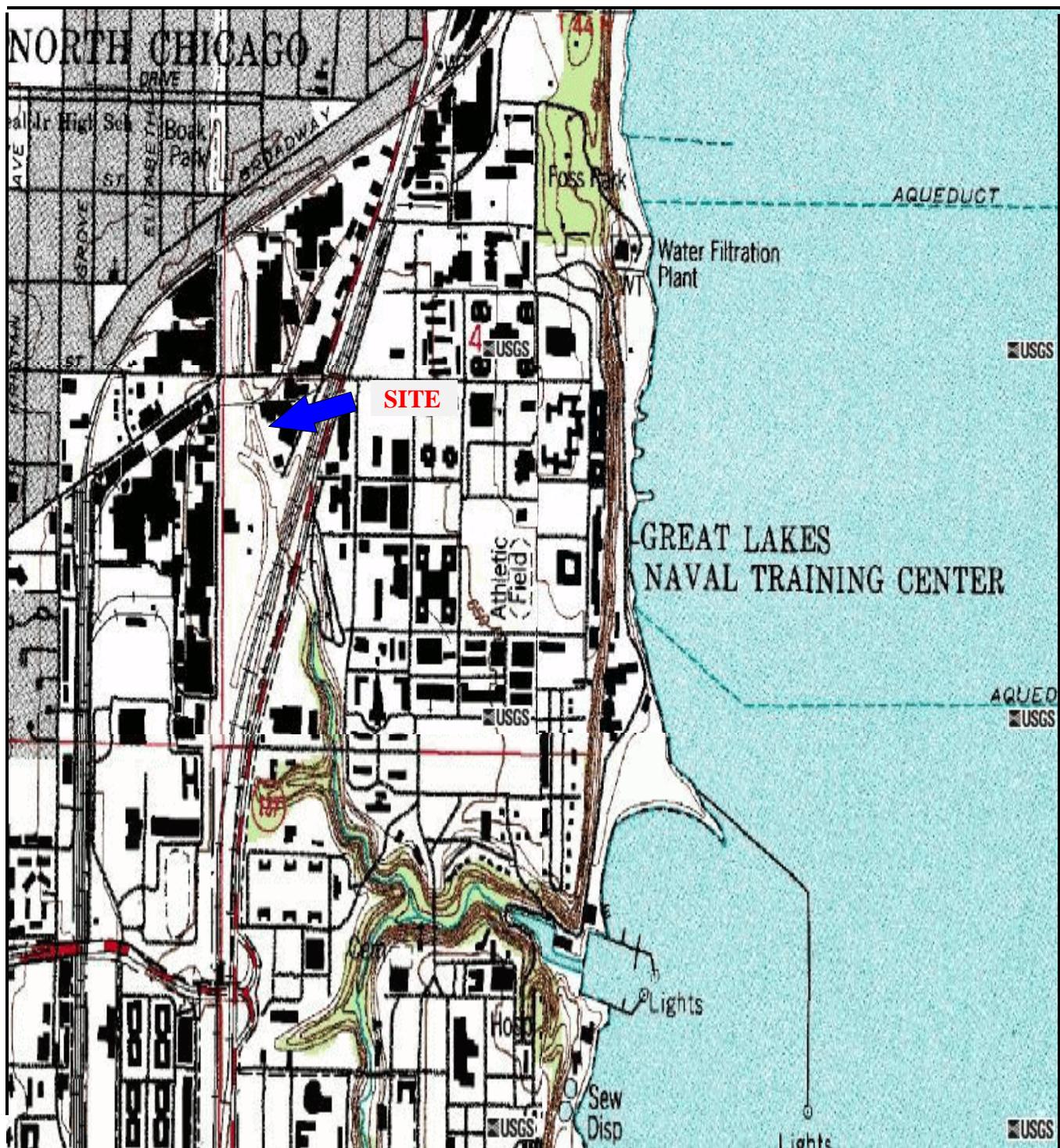
T N & Associates, Inc. (TN&A) was tasked by the United States Environmental Protection Agency (U.S. EPA), Region 5 Remedial Response Branch under Order No. 05-2207-4TWW, to investigate the contamination in a section of the Pettibone Creek, located in North Chicago, Lake County, Illinois. This investigation included a review of historical sampling events, preparation of a sampling and analysis plan, collection of investigative samples from the creek, and preparation of this Letter Report, detailing the findings of the investigation. The Pettibone Creek is located in an industrial area of North Chicago, Illinois. This investigation is focused on the section of the Pettibone Creek located between 22nd Street and Sheridan Road and the section of the Elgin Joliet & Eastern (EJ & E) railroad ditch, located at the origin of Pettibone Creek.

2.0 SITE BACKGROUND

2.1 SITE DESCRIPTION

The purpose of this sampling event was to investigate and characterize the Pettibone Creek, an intermittent creek located in an industrial area of North Chicago, Lake County, Illinois (Figure 1). The Pettibone Creek coordinates are 42° 18' 31"North and 87° 49' 58"West. An industrial property bordering the creek, known as the Vacant Lot site, was characterized as a Superfund hazardous waste site in 1989. The Pettibone Creek runs approximately 1.2 miles, originating in the northwest corner of the Vacant Lot site, at the corner of Commonwealth and 22nd Street (Martin Luther King Jr. Drive), then flowing south and east, through the Great Lakes Naval Training Center (GLNTC) until discharging into Lake Michigan. At the origin of Pettibone Creek is the Vacant Lot site, the EJ & E elevated railroad tracks, Commonwealth Road and 22nd Street. The creek flows south from its origin, through the Vacant Lot site, runs underground after exiting Vacant Lot at 22nd Street and then resurfaces to flow southeast under Sheridan Road. After passing under Sheridan Road, the creek turns east and flows through GLNTC, and discharges into Lake Michigan. An unnamed tributary, sometimes referred to as the South Branch of Pettibone Creek, flows north from a golf course pond, and joins the Creek. The source of water for this pond is an unnamed creek that originates from a pond in Lake Bluff. Another tributary, the Small Branch of Pettibone Creek flows east from Sheridan Road and empties into Pettibone Creek before the GLNTC.

The primary flow of water in the Pettibone Creek starts with two discharges into the creek at its origin. The City of North Chicago discharges storm water into the creek. A railroad ditch, running along the northern side of EJ& E railroad tracks, also drains into the creek. In addition, surface drainage from the Vacant Lot Superfund site also flows into the creek. Several other industrial facilities have storm water discharges along the creek. Fansteel, a former manufacturing company located east of the Vacant Lot site, had at least two storm water discharges into the section of the Pettibone Creek located on the Vacant Lot site. EMCO Chemical Distributors, Inc. (EMCO), located to the west of Commonwealth Avenue, has one storm water discharge into the section of the Pettibone Creek on the Vacant Lot site. North Chicago Refiners and Smelters (NCRS), a scrap smelting and refining company, has a storm water discharge downstream of the creek's origin, just northwest of Sheridan Road.



LEGEND

Scale: 1: 24,000



North



T N & Associates, Inc.

Engineering and Science

Title:
Site Location Map

1

Figure No.:

Site: Pettibone Creek Investigation

Project No.: 2000128

City: North Chicago State: IL

Date: 4/2/01

Source: USGS Waukegan 7.5" Quadrangle

Revised: n/a

2.2 SITE HISTORY

Several industrial properties in the area of Pettibone Creek have previously been investigated for possible contamination. These investigations have included sediment sample collection from Pettibone Creek. In 1995, the Illinois Environmental Protection Agency (IEPA) completed a Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Expanded Site Inspection (ESI) covering the area of the Vacant Lot site, the Fansteel site, and the NCRS site. As part of this investigation, seven sediment samples were collected from the Pettibone Creek and its two unnamed tributaries. These samples were collected along the length of the creek from the creek's origin down to the GLNTC's inner harbor in Lake Michigan. Samples were gathered from several different depths, shallow depths from 0 to 6 inches, and deeper depths from 16 to 18 inches. Sediment contamination included volatile organic compounds (VOCs), semi-VOC (SVOCs), pesticides, polychlorinated biphenyls (PCBs), and metals. Significant contaminants observed in the sediment samples include copper, lead, manganese, nickel, zinc, arsenic, cadmium, chromium, mercury, and PCBs. Both the Small Branch and the South Branch of the Pettibone Creek showed elevated concentrations of SVOCs. Maximum levels of some inorganic contaminants found in the sediments include aluminum at 16,000 milligrams per kilogram (mg/kg), iron at 36,700 mg/kg, lead at 1,840 mg/kg, magnesium at 44,300 mg/kg, mercury at 1.6 mg/kg, vanadium at 29.7 mg/kg, and zinc at 17,000 mg/kg. Maximum VOC contaminants include acetone at 46 micrograms per kilogram ($\mu\text{g}/\text{kg}$), 1,2-dichloroethene at 700 $\mu\text{g}/\text{kg}$, toluene at 12 $\mu\text{g}/\text{kg}$, and xylene at 33 $\mu\text{g}/\text{kg}$. Maximum concentrations of some of the SVOCs found include phenanthrene at 5,700 $\mu\text{g}/\text{kg}$, anthracene at 1,200 $\mu\text{g}/\text{kg}$, acenaphthene at 850 $\mu\text{g}/\text{kg}$, bis(2-ethylhexyl)phthalate at 300,000 $\mu\text{g}/\text{kg}$, pyrene at 6,100 $\mu\text{g}/\text{kg}$, benzo(a)anthracene at 3,400 $\mu\text{g}/\text{kg}$, chrysene at 3,800 $\mu\text{g}/\text{kg}$, benzo(b)fluoranthene at 4,300 $\mu\text{g}/\text{kg}$, benzo(k)fluoranthene at 2,800 $\mu\text{g}/\text{kg}$, and benzo(a)pyrene at 3,200 $\mu\text{g}/\text{kg}$. Pesticide contamination included alpha-BHC, delta-BHC, dieldrin, 4,4'-1,1,1-trichloro-2,2-bis(*p*-chlorophenyl)ethane (DDT), 4,4'-1,1-dichloro-2,2-bis(*p*-chlorophenyl)ethane (DDD), 4,4'-1,1-dichloro-2,2-bis(*p*-chlorophenyl)ethylene (DDE), endrin, endrin aldehyde, alpha-chlordane, gamma-chlordane, and PCBs.

In 1997, an Engineering Evaluation/Cost Analysis (EE/CA) was performed for the Vacant Lot Site, located at the origin of Pettibone Creek. The EE/CA, performed by Ecology and Environment, Inc. (E & E), a U.S. EPA contractor, included collection of several sediment samples from the on-site portion of the

Pettibone Creek Investigation Letter Report

Pettibone Creek. Samples were taken from locations at the origin of the creek and from the EJ & E railroad ditch. The sediment samples collected from the creek revealed organic and inorganic contaminants. Maximum contaminant levels included beryllium at 3 mg/kg, lead at 1,500 mg/kg, benzo(a)anthracene at 18 mg/kg, benzo(b)fluoranthene at 33 mg/kg, benzo(a)pyrene at 25 mg/kg, indeno(1,2,3-cd)pyrene at 9.7 mg/kg, and dibenzo(a,h)anthracene at 2 mg/kg. Contamination was present from depths of 0 to 5 feet below the creek bed. The sediment sample collected from the railroad ditch showed only organic contamination.

In 2000, additional sediment samples were collected from Pettibone Creek as part of a Site Investigation, completed by a contractor for Fansteel, Inc., at the request of the U.S. EPA. During the Site Investigation, 3 sediment samples were collected from Pettibone Creek at two varying depths, 0 to 6 inches and 6 to 12 inches. These samples were collected in the portion of Pettibone Creek located south of 22nd Street. One additional sediment sample was collected at the same depths (0 to 6 inches and 6 to 12 inches) from the drainage ditch, located on the north side of the EJ & E railroad tracks. Analytical results from the creek sediment samples indicated tetrachloroethene, vinyl chloride, benzo(a)anthracene, benzo(a)pyrene, dibenzo(a,h)anthracene, arsenic, selenium, and Synthetic Precipitate Leaching Procedure (SPLP) lead contamination in one or more of the samples at concentrations above the IEPA Tiered Approach to Corrective Action Objectives (TACO) soil remediation objectives. Total lead was detected above the soil remediation objective in each sediment sample. In addition, PCB-1260 was detected in four of the creek sediment samples and the ditch sediment samples, but not at levels above the soil remediation objectives.

3.0 SITE INVESTIGATION ACTIVITIES

On October 24, 2000, Raghu Nagam and Stephanie Wenning of TN&A, mobilized to the Pettibone Creek to conduct sampling activities based upon the Sampling and Analysis Plan (SAP) submitted to the U.S. EPA on October 4, 2000. The SAP called for the collection of approximately 10 sediment samples from a section of the Pettibone Creek, located between 22nd Street and Sheridan Road, and from the EJ & E railroad ditch, north of the Fansteel site. A storm water discharge pipe from the NCRS and the City of North Chicago is located along the section of the creek to be sampled. This section of Pettibone Creek is downstream from the Fansteel site and upstream from the GLNTC. The EJ & E railroad ditch, running along the northern side of the EJ & E railroad tracks, empties into Pettibone Creek at its origin.

Following a review of the site health and safety plan, TN&A initiated sample collection at the southern end of the creek, under the Sheridan Road overpass. A sediment sample was collected at the entrance of a culvert, approximately 10 feet in diameter, located underneath the highway. Refer to Table 1 for a detailed description of each sample location, depth, and time.

The desired sample collection depth was approximately 0 to 6 inches. Concrete was encountered in the southern end of the creek bed, near the culvert, making sediment sample collection from a depth of 0 to 6 inches inaccessible. Therefore, sample SED 1001 was collected from the surface of the concrete creek bed at the entrance of the culvert. In addition, portions of the creek were covered with large rocks, restricting access to the creek bed. Samples SED 1002, SED 1004, and SED 1004Dup were collected at



View of NCRS/City of North Chicago storm water discharge into Pettibone Creek. Location of sample SED 1003.

Pettibone Creek Investigation Letter Report

the surface due to these rock impediments.

Following the collection of seven sediment samples from the creek bed, two additional sediment samples were collected from the EJ & E railroad ditch. A total of nine samples were collected, including eight samples, an matrix spike/matrix spike duplicate (MS/MSD) and a duplicate sample (Figure 2). At each sediment sample location, a dedicated trowel was used to collect the sediment sample from the creek bed and the sampler donned new Nitrile gloves for the collection of each sample. Each sample required collection of two 4-ounce jars and two 8-ounce jars for analysis. The samples were preserved with ice, packaged and shipped to U.S. EPA Contract Laboratories Program (CLP) laboratories, Liberty Analytical and Chemtech, for Target Analyte List (TAL) and Target Compound List (TCL) analysis. A 21-day turnaround time was requested for the analytical results.

| Table 1 | | | | | |
|---|--------------|-------------------|---------|---|--|
| Sample Description Table Pettibone Creek Investigation North Chicago, Lake County, Illinois | | | | | |
| Date | Sample ID | CLP Sample Number | Depth | Location | Comments |
| 10/24/00 | SED1001 | E0354, ME0515 | Surface | At the entrance to Sheridan Road culvert | At this location, the creek has a concrete bed |
| 10/24/00 | SED1002 | E0355, ME0516 | Surface | Midway between NCRS discharge and sample SED1001 | Large rocks in creek bed |
| 10/24/00 | SED1003 | E0356, ME0517 | 0-6" | At NCRS discharge | Sandy material MS/MSD sample collected |
| 10/24/00 | SED 1004 | E0357, ME0518 | Surface | 15' North of SED1003 | Large rocks in the creek bed |
| 10/24/00 | SED 1004 DUP | E0358, ME0519 | Surface | 15' North of SED1003 | Duplicate sample |
| 10/24/00 | SED 1005 | E0359, ME0520 | 0-2" | Between SED1004 and the Federal Chicago fence | Sandy material and rocks |
| 10/24/00 | SED 1006 | E0360, ME0521 | 0-2" | At the Federal Chicago fence just after 22 nd Street culvert | Sandy material and rocks |
| 10/24/00 | SED 1007 | E0361, ME0522 | 0-6" | North side of EJ&E railroad, at Fansteel and NCRS boundary | Sandy material and rocks Background sample from ditch, behind apartment complex |
| 10/24/00 | SED 1008 | E0362, ME0523 | 0-6" | East of storm water pipe, in the EJ& E railroad ditch | Sandy material, rocks, debris and glass |

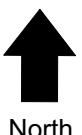
Key:

MS/MSD = Matrix Spike/Matrix Spike Duplicate
" = Inches



LEGEND

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| | |
|--|-----------------------------|
| Title: Sample Location Map | Figure No.: 2 |
| Site: Pettibone Creek Investigation | Project No.: 2000128 |
| City: North Chicago | State: IL |
| Source: USGS Waukegan 7.5" Quadrangle | Revised: n/a |

4.0 ANALYTICAL RESULTS

All nine sediment samples collected were analyzed for TAL and TCL parameters. Several organic and inorganic compounds were detected in the creek bed sediment samples. The IEPA TACO regulations do not include remediation objectives for sediment samples. The sediment samples were therefore compared to alternative objectives.

Sediment sample SED 1007, the background sediment sample obtained from the railroad ditch behind the apartment complex, was used as a comparison value for inorganic compounds. The inorganic compounds detected in sample SED 1007 established a baseline value for native soil contamination. For the remainder of the sediment samples, inorganic contamination was defined as being five times the value detected in the background sample. Refer to Tables 2 and 3 for analytical results from the samples collected in Pettibone Creek. Table 2 details inorganic compound contamination detected above five times the background level while Table 3 lists all inorganic concentrations detected in sediment samples.

Table 2

**Inorganic Compound Contamination
Pettibone Creek Investigation
North Chicago, Lake County, Illinois**

Units = mg/kg

| Sample Number | SED 1007 BKG | Five Times BKG | SED 1001 | SED 1002 | SED 1003 | SED 1004 | SED 1004DUP | SED 1005 | SED 1008 |
|------------------|--------------|----------------|----------|----------|----------|----------|-------------|----------|----------|
| Parameter | | | | | | | | | |
| Beryllium | 0.62 J | 3.1 | 3.1 J | 3.5 J | ND | 4.0 J | 4.2 J | 6.0 J | ND |
| Cadmium | 0.61 J | 3.05 | ND | 10.9 | ND | ND | ND | ND | 4.3 |
| Copper | 73.4 | 367 | 452 | 430 | ND | 514 | 378 | 790 | 406 |
| Lead | 47.3 | 236.5 | ND | ND | 283 | ND | ND | 570 | 393 |
| Mercury | 0.070 J | 0.35 | ND | ND | 1.5 J | ND | ND | ND | 0.68 J |
| Sodium | 228 J | 1,140 | 1,680 | 1,740 | ND | 2,190 | 1,770 | 2,700 | ND |
| Zinc | 462 | 2,310 | 2,930 | 6,180 | 2,870 | 4,160 | 3,710 | 5,760 | 2,470 |

Key:

J = Estimated value

ND = Not detected

Table 3

Summary of Inorganic Analytical Results
Pettibone Creek Investigations
North Chicago, Lake County, Illinois

Units = mg/kg

| Sample Number: | ME0515 | ME0516 | ME0517 | ME0518 | ME0519 | ME0520 | ME0521 | ME0522 | ME0523 | Five Times Background Levels | | | | | | | | | |
|---------------------------|----------|----------|----------|----------|------------|----------|----------|-------------|----------|---|---------|-------|-------|---|-------|---|-------|---|--------|
| Sampling Location: | SED1001 | SED1002 | SED1003 | SED1004 | SED1004DUP | SED1005 | SED1006 | SED1007 BKG | SED1008 | | | | | | | | | | |
| Date Sampled | 10/24/00 | 10/24/00 | 10/24/00 | 10/24/00 | 10/24/00 | 10/24/00 | 10/24/00 | 10/24/00 | 10/24/00 | | | | | | | | | | |
| Inorganic Compound | | | | | | | | | | | | | | | | | | | |
| Aluminum | 2,500 | 2,790 | 2,430 | 3,630 | 3,630 | 3,190 | 2,480 | 8,050 | 4,450 | 40,250 | | | | | | | | | |
| Antimony | ND | ND | ND | ND | ND | ND | ND | 0.95 | J | 1.9 | J | 4.75 | | | | | | | |
| Arsenic | 4.5 | 3.2 | 5.3 | 19.7 | 15.0 | 8.4 | 5.0 | 13.2 | | 34.9 | | 66 | | | | | | | |
| Barium | 31.5 | 26.9 | 116 | 39.9 | 31.9 | 45.0 | 38.0 | 221 | | 85.1 | | 1,105 | | | | | | | |
| Beryllium | 3.1 | J | 3.5 | J | 1.3 | J | 4.0 | J | 4.2 | J | 6.0 | J | 1.5 | J | 0.62 | J | 0.81 | J | 3.10 |
| Cadmium | 0.58 | J | 10.9 | | 1.1 | J | 0.32 | J | 0.51 | J | 0.66 | J | 0.57 | J | 0.61 | J | 4.3 | | 3.05 |
| Calcium | 106,000 | 71,200 | 98,200 | 94,500 | 95,900 | 95,500 | 88,200 | 48,700 | 50,900 | | 243,500 | | | | | | | | |
| Chromium | 12.4 | 19.3 | 11.7 | 10.9 | | 8.9 | 14.2 | 7.3 | 16.4 | | 16.2 | | | | | | | | |
| Cobalt | 3.2 | 3.7 | 4.3 | 6.0 | 5.3 | 3.9 | 5.5 | 14.6 | 10.0 | | 73 | | | | | | | | |
| Copper | 452 | 430 | 319 | 514 | 378 | 790 | 288 | 73.4 | 406 | | 367 | | | | | | | | |
| Iron | 10,800 | 12,200 | 12,500 | 21,200 | 19,600 | 25,500 | 10,800 | 26,600 | 15,300 | | 133,000 | | | | | | | | |
| Lead | 168 | 211 | 283 | 233 | 234 | 570 | 171 | 47.3 | 393 | | 236.5 | | | | | | | | |
| Magnesium | 60,700 | 39,400 | 52,800 | 56,300 | 56,900 | 52,800 | 45,700 | 26,500 | 24,500 | | 132,500 | | | | | | | | |
| Manganese | 693 | J | 532 | J | 613 | J | 988 | J | 584 | J | 674 | J | 496 | J | 2,410 | J | 666 | J | 12,050 |
| Mercury | 0.25 | J | 0.23 | J | 1.5 | J | 0.10 | J | 0.10 | J | ND | | 0.17 | J | 0.070 | J | 0.68 | J | 0.35 |
| Nickel | 23.8 | J | 27.7 | J | 21.9 | J | 35.7 | J | 32.9 | J | 46.3 | J | 18.1 | J | 32.6 | J | 30.7 | J | 163 |
| Potassium | 415 | J | 353 | J | 421 | J | 676 | J | 627 | J | 469 | J | 356 | J | 1,520 | J | 1,180 | J | 7,600 |
| Selenium | ND | ND | ND | ND | | ND | | 1.2 | ND | | ND | | 3.8 | | ND | | | | |
| Silver | 0.80 | J | 0.92 | J | 1.2 | J | 0.66 | J | 0.57 | J | 1.6 | J | 0.52 | J | 0.47 | J | 1.3 | J | 2.35 |
| Sodium | 1,680 | J | 1,740 | J | 946 | J | 2,190 | J | 1,770 | J | 2,700 | J | 1,000 | J | 228 | J | 317 | J | 1,140 |
| Vanadium | 6.0 | | 5.6 | | 7.6 | | 9.3 | | 7.8 | | 5.8 | | 6.5 | | 21.8 | | 13.2 | | 109 |
| Zinc | 2,930 | | 6,180 | | 2,870 | | 4,160 | | 3,710 | | 5,760 | | 2,260 | | 462 | | 2,470 | | 2,310 |

Note: Highlighted analytical results are values which exceed the five times background level criteria.

Key:

- mg/kg = Milligrams per kilogram
- J = Estimated value
- ND = Not detected
- DUP = Duplicate
- BKG = Background sample

Several organic compounds, including VOCs, SVOCs, and pesticides, were detected in the sediment samples. Since remediation objectives do not exist for sediments within the IEPA TACO regulations, the sediment organic data is being compared to two guideline values. The sediment organic data is evaluated against two guidelines: The National Status and Trends Program (NSTP) Approach of the National Oceanic and Atmospheric Administration (NOAA) and the guidelines for the Protection and Management of Aquatic Sediment Quality in Ontario. The NSTP Approach, detailed in the U.S. EPA Office of Water document titled, "Sediment Classification Methods Compendium" outlines guideline values for several organic compounds intended to be used in estimating the potential for adverse effects among benthic communities. These guidelines are not applicable to the protection of human health, however they do provide a benchmark for evaluating potential threats posed by contaminated sediment materials. The guidelines are represented in two different categories for each chemical of concern:

Effects Range-Low (ERL) category represents concentrations below which toxic effects rarely occur.

Effects Range-Medium (ERM) category represents concentrations at which toxic effects usually or frequently occurred.

The ERL and ERM guidelines exist for several SVOCs which were detected in the creek sediment samples.

The guidelines for the Protection and Management of Aquatic Sediment Quality in Ontario (Ontario guidelines) are designed to help protect the aquatic environment by setting safe levels for metals, nutrients, and organic compounds. The Ontario guidelines establish three levels of effect:

No Effect Level (NEL): This is the level at which the chemicals in the sediment do not affect fish or the sediment-dwelling organisms. At this level no transfer of chemicals through the food chain and no effect on water quality is expected.

Lowest Effect Level (LEL): This indicates a level of contamination which has no effect on the majority of sediment-dwelling organisms. The sediment is clean to marginally polluted.

Severe Effect Level (SEL): At this level, the sediment is considered heavily polluted and likely to affect the health of sediment-dwelling organisms. If the level of contamination exceeds the Severe Effect Level then testing of the contamination is required to determine whether or not the sediment is acutely toxic.

Sediment samples SED 1003 (NCRS/North Chicago storm water discharge) and SED 1008 (railroad ditch) contain fluorene, anthracene, pyrene, acenaphthene, chrysene, phenanthrene, benzo(a)anthracene, benzo(a)pyrene, dibenzo(a,h)anthracene, and fluoranthene concentrations at levels exceeding the ERM and LEL guidelines. Naphthalene and 2-methylnaphthalene concentrations are above their respective

ERL guidelines. Sediment samples SED 1001 and SED 1002 contain pyrene, phenanthrene, benzo(a)anthracene, and dibenzo(a,h) anthracene concentrations above the ERM and LEL guidelines. Sediment sample SED 1006 contains phenanthrene concentration above the ERM and LEL guideline. Several other sediment samples contain fluorene, anthracene, pyrene, chrysene, phenanthrene, benzo(a)anthracene, benzo(a)pyrene, dibenzo(a,h)anthracene, and/or fluoranthene concentrations above the ERL but below the ERM guidelines. Table 4 lists organic contamination based on ERL, ERM, LEL, and SEL guidelines. Various VOCs and pesticides were detected at low levels in the sediment samples and include methylene chloride, trichloroethene, tetrachloroethene, and endosulfan sulfate. NSTP approach and Ontario guidelines are not available for these detected compounds. Beta-BHC, heptachlor epoxide, dieldrin, 4,4'-DDE, and endrin concentrations in some sediment samples are above their respective LEls.

Some of the highest levels of SVOC contamination are present in sample SED 1003. This sample was collected at the NCRS/City of North Chicago discharge into Pettibone Creek. SVOC's detected in sample SED 1003 include fluorene (3,200 µg/kg), anthracene (3,700 µg/kg), pyrene (13,000 µg/kg), ancenaphthene (2,800 µg/kg), phenanthrene (15,000 µg/kg), benzo(k)fluoranthene (8,100 µg/kg), indeno(1,2,3-cd)pyrene (3,200 µg/kg), benzo(g,h,i)perylene (3,000 µg/kg) chrysene (5,800 µg/kg), dibenzofuran (1,700 µg/kg), fluoranthene (13,000 µg/kg), benzo(a)anthracene (5,900 µg/kg), bis(2-Ethylhexyl)phthalate (1,700 µg/kg), benzo(b)fluoranthene (7,200 µg/kg), benzo(a)pyrene (4,900 µg/kg) and dibenzo(a,h)anthracene (1,100 µg/kg). Many of these compounds were detected above the ERM concentration in SED 1003. SVOC contamination is also present in samples SED 1001 and SED 1002, collected downstream from sample SED 1003. Samples SED 1004, SED 1005 and SED 1006, collected upstream from sample SED 1003 location, contain lower levels of SVOC contamination in comparison to SED 1003 location. Sample SED 1007, the background sample, also contains SVOCs contamination, consistent with the samples collected upstream of the NCRS/North Chicago storm water discharge. Sample SED 1008, collected from the railroad ditch, east of the storm water pipe, also contained high levels of SVOCs including fluorene (1,100 µg/kg), pyrene (9,100 µg/kg), benzo(k)fluoranthene (8,100 µg/kg), indeno(1,2,3-cd)pyrene (3,200 µg/kg), benzo(g,h,i)perylene (2,800 µg/kg), phenanthrene (8,100 µg/kg), fluoranthene (10,000 µg/kg), benzo(a)anthracene (4,700 µg/kg), chrysene (5,900 µg/kg), indeno(1,2,3-cd)pyrene (3,200 µg/kg), anthracene (2,300 µg/kg), benzo(b)fluoranthene (7,200 µg/kg),

Pettibone Creek Investigation Letter Report

benzo(a)pyrene (4,500 µg/kg), and dibenzo(a,h)anthracene (1,100 µg/kg).

Table 4

**Comparison of Organic Data with ERL, ERM, LEL, and SEL Criteria
Pettibone Creek Investigation
North Chicago, Lake County, Illinois**

Units = µg/kg

| SVOC | ERL | ERM | LEL | SEL | SED 1001 | SED 1002 | SED 1003 | SED 1004 | SED 1004 Dup | SED 1005 | SED 1006 | SED 1008 |
|------------------------|------|-------|-----|-----------|--------------|--------------|-----------------|-------------|--------------------|-------------|--------------|----------------|
| 2-methylnaphthalene | 70 | 670 | NA | NA | ND | ND | 250 J | ND | ND | ND | 73 J | 270 J |
| Fluorene | 35 | 640 | 190 | 160,000 | 530 J | 320 J | 3,200 | 110 J | 59 J | ND | 190 J | 1,100 J |
| Anthracene | 85.3 | 1,100 | 220 | 370,000 | 780 J | 590 J | 3,700 | 400 | 83 J | 95 J | 510 | 2,300 |
| Pyrene | 665 | 2,600 | 490 | 850,000 | 4,300 | 3,300 | 13,000 J | 1,400 | 430 | 600 | 2,100 | 9,100 |
| Acenaphthene | 150 | 650 | NA | NA | 410 J | 220 J | 2,800 J | 49 J | 50 J | ND | 150 J | 980 J |
| Chrysene | 400 | 2,800 | 340 | 460,000 | 2,400 | 1,900 | 5,800 | 740 | 220 J | 320 J | 1,200 | 5,900 |
| Naphthalene | 340 | 2,100 | NA | NA | ND | ND | 480 J | ND | ND | ND | 58 J | 360 J |
| Phenanthrene | 240 | 1,500 | 560 | 950,000 | 4,000 | 2,800 | 15,000 | 1100 | 410 | 460 | 2,500 | 8,100 |
| Benzo(a)anthracene | 261 | 1,600 | 320 | 1,480,000 | 1,900 | 1,600 | 5,900 | 700 | 160 J | 250 J | 1,000 | 4,700 |
| Benzo(a)pyrene | 430 | 2,500 | 370 | 1,440,000 | 2,000 | 1,500 | 4,900 J | 630 | 180 J | 260 J | 720 | 4,500 |
| Dibenzo(a,h)anthracene | 63.4 | 260 | 60 | 130,000 | 430 J | 400 J | 1,100 | 180 J | ND | 57 J | 200 J | 1,100 J |
| Fluoranthene | 600 | 5,100 | 750 | 1,020,000 | 4,900 | 3,500 | 13,000 | 1,600 | 460 | 670 | 2,100 | 10,000 |

Note:

Bolded analytical results are values which exceed the ERM value.

Key:

- µg/kg = Micrograms per kilogram.
- ERL = Effects Range-Low.
- ERM = Effects Range-Medium.
- LEL = Lowest Effect Level.
- SEL = Severe Effect Level.
- ND = Not detected.
- J = Estimated value.

Historical analytical results of sediment samples collected from the Pettibone Creek have indicated contamination in the creek sediment. The contamination has included organic and inorganic compounds. Due to the uncertainty of locating exact historical sample points, historical sample locations have been classified into 4 Sections: Section 1-North of the railroad tracks, Section 2-Between Section 1 and north of 22nd Street, Section 3-Between Section 2 and north of Sheridan Road, and Section 4-South of Section 3 up to Pettibone creek's discharge into Lake Michigan. Evaluation of historical results with respect to NSTP approach and Ontario guidelines indicate that Section 1 has SVOC contamination. Historical SVOC contamination in Section 1 does not exceed ERM guidelines but does exceed ERL guidelines. Section 3 has similar historical SVOC contamination exceeding the ERL and LEL guidelines. Section 4 has SVOC contamination consistent with the results of Section 3. Section 4 SVOC contamination exceeds the ERL and LEL guidelines. Refer to Table 5 for historical data.

Table 5

Summary of Historical Analytical Results
Pettibone Creek Investigation
North Chicago, Lake County, Illinois

| Sample ID | Ditch-1A | Ditch-1B | SED 1-1 | SED 1-2 | SED1007 | SED1008 | X210 | SED 2-1 | SED 3-1 | SED 3-2 | SED 3C-1 | SED 3C-2 |
|---------------------------------------|-----------|----------|----------|-----------|----------|----------|---------|-----------|----------|-----------|----------|-----------|
| Depth | 0" - 6" | 6" - 12" | 0" - 12" | 12" - 24" | 0" - 6" | 0" - 6" | 0" - 6" | 0" - 12" | 0" - 12" | 12" - 24" | 0" - 12" | 12" - 24" |
| Date | 6/7/00 | 6/7/00 | 1/1/97 | 1/1/97 | 10/24/00 | 10/24/00 | 4/26/94 | 1/1/97 | 1/1/97 | 1/1/97 | 1/1/97 | 1/1/97 |
| Source | Carlson | Carlson | VL EE/CA | VL EE/CA | TN&A | TN&A | IEPA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA |
| Parameter | Section 1 | | | | | | | Section 2 | | | | |
| VOLATILES (units = µg/kg) | | | | | | | | | | | | |
| Chloromethane | ND | ND | 15 U | 13 U | 17 U | 13 U | 12 U | 13 U | 12 U | 12 U | NA | 14 U |
| Bromomethane | ND | ND | 15 U | 13 U | 17 U | 13 U | 12 U | 13 U | 12 U | 12 U | NA | 14 U |
| Vinyl Chloride | ND | ND | 15 U | 13 U | 17 U | 13 U | 670.0 D | 13 U | 12 U | 12 U | NA | 14 U |
| Chloroethane | ND | ND | 15 U | 13 U | 17 U | 13 U | 12 U | 13 U | 12 U | 12 U | NA | 14 U |
| Methylene Chloride | 27.8 G | 36.7 G | 15 U | 13 U | 4 J | 4 J | 12 U | 13 U | 16 U | 18 U | NA | 14 U |
| Acetone | ND | ND | 15 UJ | 13 UJ | 17 U | 13 U | 12 UJ | 9 J | 12 UJ | 12 UJ | NA | 32 U |
| Carbon Disulfide | ND | ND | 15 U | 13 U | 17 UJ | 13 UJ | 12 U | 13 U | 12 U | 12 U | NA | 14 U |
| 1,1-Dichloroethene | ND | ND | 15 U | 13 U | 17 U | 13 U | 8.0 J | 13 U | 12 UJ | 12 U | NA | 14 U |
| 1,1-Dichloroethane | ND | ND | 15 U | 13 U | 17 U | 13 U | 12 J | 13 U | 12 U | 12 U | NA | 14 U |
| 1,2-Dichloroethene (total) | NA | NA | 15 U | 13 U | NR | NR | 700.0 D | 13 U | 5 J | 12 U | NA | 14 U |
| cis-1,2-Dichloroethene | 6.86 | ND | NR | NR | 17 U | 13 U | NR | NR | NR | NR | NA | NR |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | ND | ND | NA | NA | 3 J | 2 J | NA | NA | NA | NA | NA | NA |
| Chloroform | ND | ND | 15 U | 13 U | 17 U | 13 U | 12 U | 13 U | 12 U | 12 U | NA | 14 U |
| 1,2-Dichloroethane | ND | ND | 15 U | 13 U | 17 U | 13 U | 12 UJ | 13 U | 12 U | 12 U | NA | 14 U |
| 2-Butanone | ND | ND | 15 U | 13 U | 17 U | 13 U | 12 U | 13 U | 12 U | 12 U | NA | 14 U |
| 1,1,1-Trichloroethane | ND | ND | 15 U | 13 U | 17 U | 13 U | 12 U | 13 U | 12 U | 12 UJ | NA | 14 U |
| Carbon tetrachloride | ND | ND | 15 U | 13 U | 17 U | 13 U | 12 U | 13 U | 12 U | 12 UJ | NA | 14 U |
| Bromodichloromethane | ND | ND | 15 U | 13 U | 17 U | 13 U | 12 U | 13 U | 12 U | 12 UJ | NA | 14 U |
| 1,2-Dichloropropane | ND | ND | 15 U | 13 U | 17 U | 13 U | 12 U | 13 U | 12 U | 12 UJ | NA | 14 U |
| Cis-1,3-dichloropropane | NR | NR | 15 U | 13 U | NR | NR | NR | 13 U | 12 U | 12 UJ | NA | 14 U |
| Trichloroethene | ND | ND | 15 U | 13 U | 17 U | 13 U | 4 J | 13 U | 54 | 170 J | NA | 14 U |
| Dibromochloromethane | ND | ND | 15 U | 13 U | 17 U | 13 U | 12 U | 13 U | 12 U | 12 UJ | NA | 14 U |
| 1,1,2-Trichloroethane | ND | ND | 15 U | 13 U | 17 U | 13 U | 12 U | 13 U | 12 U | 12 UJ | NA | 14 U |
| Benzene | ND | ND | 15 U | 13 U | 17 U | 13 U | 12 U | 13 U | 12 UJ | 6 J | NA | 14 U |
| Trans-1,3-dichloropropene | NR | NR | 15 U | 13 U | 17 U | 13 U | 12 U | 13 U | 12 U | 12 UJ | NA | 14 U |
| Bromoform | ND | ND | 15 U | 13 U | 17 U | 13 U | 12 U | 13 U | 12 U | 12 UJ | NA | 14 U |
| 4-Methyl-2-Pentanone | ND | ND | 15 U | 13 U | 17 U | 13 U | 12 UJ | 13 U | 12 U | 12 UJ | NA | 14 U |
| 2-Hexanone | ND | ND | 15 U | 13 U | 17 U | 13 U | 12 U | 13 U | 12 U | 12 UJ | NA | 14 U |
| Tetrachloroethane | NA | NA | 15 U | 13 U | 17 U | 5 J | NA | 13 U | 12 U | 12 UJ | NA | 14 U |
| Tetrachloroethene | ND | ND | NA | NA | NA | NA | 12 U | NA | NA | NA | NA | NA |
| 1,1,2,2-Tetrachloroethane | ND | ND | 15 U | 13 U | 17 U | 13 U | 12 U | 13 U | 12 U | 12 UJ | NA | 14 U |
| Toluene | ND | ND | 6 J | 4 J | 17 U | 13 U | 12 U | 13 U | 16 | 30 J | NA | 14 U |

Table 5

Summary of Historical Analytical Results
Pettibone Creek Investigation
North Chicago, Lake County, Illinois

| Sample ID | Ditch-1A | Ditch-1B | SED 1-1 | SED 1-2 | SED1007 | SED1008 | X210 | SED 2-1 | SED 3-1 | SED 3-2 | SED 3C-1 | SED 3C-2 |
|--------------------------------------|------------------|----------|----------|-----------|----------|----------|---------|------------------|----------|-----------|----------|-----------|
| Depth | 0" - 6" | 6" - 12" | 0" - 12" | 12" - 24" | 0" - 6" | 0" - 6" | 0" - 6" | 0" - 12" | 0" - 12" | 12" - 24" | 0" - 12" | 12" - 24" |
| Date | 6/7/00 | 6/7/00 | 1/1/97 | 1/1/97 | 10/24/00 | 10/24/00 | 4/26/94 | 1/1/97 | 1/1/97 | 1/1/97 | 1/1/97 | 1/1/97 |
| Source | Carlson | Carlson | VL EE/CA | VL EE/CA | TN&A | TN&A | IEPA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA |
| Parameter | Section 1 | | | | | | | Section 2 | | | | |
| Chlorobenzene | ND | ND | 15 U | 13 U | 17 U | 13 U | 12 U | 13 U | 12 UJ | 12 UJ | NA | 14 U |
| Ethylbenzene | ND | ND | 15 U | 13 U | 17 U | 13 U | 12 U | 13 U | 12 U | 12 UJ | NA | 14 U |
| Styrene | ND | ND | 15 U | 13 U | 17 U | 13 U | 12 U | 13 U | 12 U | 4 J | NA | 14 U |
| Xylene (total) | ND | ND | 15 U | 13 U | 17 U | 13 U | 12 U | 13 U | 12 U | 12 UJ | NA | 14 U |
| SEMIVOLATILES (units = µg/kg) | | | | | | | | | | | | |
| Phenol | NA | NA | 480 U | 430 U | 560 U | 2,100 U | 400 U | 430 U | 410 U | 400 U | 520 U | 470 U |
| Bis(2-chloroethyl)ether | NA | NA | 480 U | 430 U | 560 U | 2,100 U | 400 U | 430 U | 410 U | 400 U | 520 U | 470 U |
| 2-Chlorophenol | NA | NA | 480 U | 430 U | 560 U | 2,100 U | 400 U | 430 U | 410 U | 400 U | 520 U | 470 U |
| 1,3-Dichlorobenzene | NA | NA | 480 U | 430 U | NA | NA | 400 U | 430 U | 410 U | 400 U | 520 U | 470 U |
| 1,4-Dichlorobenzene | NA | NA | 480 U | 430 U | NA | NA | 400 U | 430 U | 410 U | 400 U | 520 U | 470 U |
| 1,2-Dichlorobenzene | NA | NA | 480 U | 430 U | NA | NA | 400 U | 430 U | 410 U | 400 U | 520 U | 470 U |
| 2-Methylphenol | NA | NA | 480 U | 430 U | 560 U | 2,100 U | 400 U | 430 U | 410 U | 400 U | 520 U | 470 U |
| 2,2'-Oxybis(1-chloropro | NA | NA | 480 U | 430 U | 560 U | 2,100 U | 400 U | 430 U | 410 U | 400 U | 520 U | 470 U |
| 4-Methylphenol | NA | NA | 480 U | 430 U | 560 U | 2,100 U | 400 U | 95 J | 410 U | 400 U | 520 U | 470 U |
| N-nitroso-di-n-propylam | NA | NA | 480 U | 430 U | 560 U | 2,100 U | 400 U | 430 U | 470 | 400 U | 520 U | 470 U |
| Hexachloroethane | NA | NA | 480 U | 430 U | 560 U | 2,100 U | 400 U | 430 U | 410 U | 400 U | 520 U | 470 U |
| Nitrobenzene | NA | NA | 480 U | 430 U | 560 U | 2,100 U | 400 U | 430 U | 410 U | 400 U | 520 U | 470 U |
| Isophorone | NA | NA | 480 U | 430 U | 560 U | 2,100 U | 400 U | 430 U | 410 U | 400 U | 520 U | 470 U |
| 2-Nitrophenol | NA | NA | 480 U | 430 U | 560 U | 2,100 U | 400 U | 430 U | 410 U | 400 U | 520 U | 470 U |
| 2,4-Dimethylphenol | NA | NA | 480 U | 430 U | 560 U | 2,100 U | 400 U | 430 U | 410 U | 400 U | 520 U | 470 U |
| Bis(2-chloroethoxy)met | NA | NA | 480 U | 430 U | 560 U | 2,100 U | 400 U | 430 U | 410 U | 400 U | 520 U | 470 U |
| 2,4-Dichlorophenol | NA | NA | 480 U | 430 U | 560 U | 2,100 U | 400 U | 430 U | 410 U | 400 U | 520 U | 470 U |
| 1,2,4-Trichlorobenzene | NA | NA | 480 U | 430 U | NA | NA | 400 U | 430 U | 410 U | 400 U | 520 U | 470 U |
| Naphthalene | 9.77 | ND | 140 J | 220 J | 560 U | 360 J | 400 U | 1,100 | 570 | 1,100 | 520 U | 470 U |
| 4-Chloroaniline | NA | NA | 480 U | 430 U | 560 U | 2,100 U | 400 U | 430 U | 410 U | 400 U | 520 U | 470 U |
| Hexachlorobutadiene | NA | NA | 480 U | 430 U | 560 U | 2,100 U | 400 U | 430 U | 410 U | 400 U | 520 U | 470 U |
| 4-Chloro-3-methylphen | NA | NA | 480 U | 430 U | 560 U | 2,100 U | 400 U | 430 U | 410 U | 400 U | 520 U | 470 U |
| 2-Methylnaphthalene | NA | NA | 130 J | 170 J | 560 UJ | 270 J | 400 U | 330 J | 300 J | 500 | 520 U | 470 U |
| Hexachlorocyclopentad | NA | NA | 480 UJ | 430 UJ | 560 U | 2,100 U | 400 U | 430 UJ | 410 UJ | 400 UJ | 520 U | 470 U |
| 2,4,6-Trichlorophenol | NA | NA | 480 U | 430 UJ | 560 U | 2,100 U | 400 U | 430 UJ | 410 UJ | 400 UJ | 520 U | 470 U |
| 2,4,5-Trichlorophenol | NA | NA | 1,200 U | 1,000 UJ | 1,400 U | 5,300 U | 970 U | 1,000 UJ | 990 UJ | 960 UJ | 1,300 U | 1,100 U |
| 2-Chloronaphthalene | NA | NA | 480 U | 430 UJ | 560 U | 2,100 U | 400 U | 430 UJ | 410 UJ | 400 UJ | 520 U | 470 U |
| 2-Nitroaniline | NA | NA | 1,200 U | 1,000 UJ | 1,400 U | 5,300 U | 970 U | 1,000 UJ | 990 UJ | 960 UJ | 1,300 U | 1,100 U |
| Dimethylphthalate | NA | NA | 480 U | 430 UJ | 560 U | 2,100 U | 400 U | 430 UJ | 410 UJ | 400 UJ | 520 U | 470 U |

Table 5

Summary of Historical Analytical Results
Pettibone Creek Investigation
North Chicago, Lake County, Illinois

| Sample ID | Ditch-1A | Ditch-1B | SED 1-1 | SED 1-2 | SED1007 | SED1008 | X210 | SED 2-1 | SED 3-1 | SED 3-2 | SED 3C-1 | SED 3C-2 |
|----------------------------|------------------|----------|----------|-----------|----------|----------|------------------|----------|----------|-----------|----------|-----------|
| Depth | 0" - 6" | 6" - 12" | 0" - 12" | 12" - 24" | 0" - 6" | 0" - 6" | 0" - 6" | 0" - 12" | 0" - 12" | 12" - 24" | 0" - 12" | 12" - 24" |
| Date | 6/7/00 | 6/7/00 | 1/1/97 | 1/1/97 | 10/24/00 | 10/24/00 | 4/26/94 | 1/1/97 | 1/1/97 | 1/1/97 | 1/1/97 | 1/1/97 |
| Source | Carlson | Carlson | VL EE/CA | VL EE/CA | TN&A | TN&A | IEPA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA |
| Parameter | Section 1 | | | | | | Section 2 | | | | | |
| Acenaphthylene | ND | 332 | 260 J | 210 J | 560 U | 470 J | 400 U | 150 J | 170 J | 260 J | 520 U | 470 U |
| 2,6-Dinitrotoluene | NA | NA | 480 U | 430 UJ | 560 U | 2,100 U | 400 U | 430 UJ | 410 UJ | 400 UJ | 520 U | 470 U |
| 3-Nitroaniline | NA | NA | 1,200 U | 1,000 UJ | 1,400 U | 5,300 U | 970 U | 1,000 UJ | 990 UJ | 960 UJ | 1,300 U | 1,100 U |
| Acenaphthene | 339 | 180 | 140 J | 340 J | 560 U | 980 J | 400 U | 4,400 J | 2,500 J | 1,400 J | 520 U | 470 U |
| 2,4-Dinitrophenol | NA | NA | 1,200 U | 1,000 UJ | 1,400 U | 5,300 U | 970 U | 1,000 UJ | 990 UJ | 960 UJ | 1,300 U | 1,100 UJ |
| 4-Nitrophenol | NA | NA | 1,200 U | 1,000 UJ | 1,400 UJ | 5,300 UJ | 970 UJ | 1,000 UJ | 990 UJ | 960 UJ | 1,300 U | 1,100 U |
| Dibenzofuran | NA | NA | 130 J | 210 J | 560 U | 590 J | 400 U | 2,300 J | 1,100 J | 770 J | 520 U | 470 U |
| 2,4-Dinitrotoluene | NA | NA | 480 U | 430 UJ | 560 U | 2,100 U | 400 U | 430 UJ | 410 UJ | 400 UJ | 520 U | 470 U |
| Diethylphthalate | NA | NA | 480 U | 430 UJ | 560 U | 2,100 U | 400 U | 430 UJ | 410 UJ | 400 UJ | 520 U | 470 U |
| 4-Chlorophenyl-phenyle | NA | NA | 480 U | 430 UJ | 560 U | 2,100 U | 400 U | 430 UJ | 410 UJ | 400 UJ | 520 U | 470 U |
| Fluorene | 33.9 | 47.1 | 170 J | 350 J | 560 U | 1,100 J | 400 U | 4,600 J | 2,100 J | 1,200 J | 520 U | 470 U |
| 4-Nitroaniline | NA | NA | 1,200 U | 1,000 UJ | 1,400 UJ | 5,300 UJ | 970 UJ | 1,000 UJ | 990 UJ | 960 UJ | 1,300 U | 1,100 U |
| 4,6-Dinitro-2-methylphe | NA | NA | 1,200 U | 1,000 UJ | 1,400 U | 5,300 U | 970 U | 1,000 UJ | 990 UJ | 960 UJ | 1,300 U | 1,100 U |
| N-nitrosodiphenylamine | NA | NA | 480 U | 430 UJ | 560 U | 2,100 U | 400 U | 430 UJ | 410 UJ | 400 UJ | 520 U | 470 U |
| 4-Bromophenyl-phenyle | NA | NA | 480 U | 430 UJ | 560 U | 2,100 U | 400 U | 430 UJ | 410 UJ | 400 UJ | 520 U | 470 U |
| Hexachlorobenzene | NA | NA | 480 U | 430 UJ | 560 U | 2,100 U | 400 U | 430 UJ | 410 UJ | 400 UJ | 520 U | 470 U |
| Pentachlorophenol | NA | NA | 1,200 U | 1,000 UJ | 1,400 U | 5,300 U | 970 U | 1,000 UJ | 990 UJ | 960 UJ | 1,300 U | 1,100 U |
| Phenanthrene | 356 | 300 | 2,700 | 4,500 J | 330 J | 8,100 | 420.0 | 57,000 J | 34,000 J | 16,000 J | 310 J | 470 U |
| Anthracene | 28.6 | ND | 720 | 970 J | 61 J | 2,300 | 400 U | 9,700 J | 5,000 J | 2,300 J | 520 U | 470 U |
| Carbazole | NA | NA | 310 J | 450 J | 61 J | 1,300 J | 400 U | 5,600 J | 3,400 J | 1,500 J | 520 U | 470 U |
| Di-n-Butylphthalate | NA | NA | 480 U | 430 UJ | 560 U | 2,100 U | 530 U | 1,200 J | 410 UJ | 2,000 UJ | 520 U | 470 U |
| Fluoranthrene | 470 | 382 | 4,100 | 5,700 J | 440 J | 10,000 | 750 | 70,000 J | 39,000 J | 20,000 J | 700 | 470 U |
| Pyrene | 366 | 285 | 5,000 J | 4,700 J | 460 J | 9,100 | 730 | 26,000 | 21,000 J | 11,000 J | 550 | 470 U |
| Butylbenzylphthalate | NA | NA | 1,200 J | 62 J | 82 J | 240 J | 400 U | 290 J | 77 J | 400 UJ | 520 U | 470 U |
| 3,3'-Dichlorobenzidine | NA | NA | 480 UJ | 430 UJ | 560 UJ | 2,100 UJ | 400 U | 430 UJ | 410 UJ | 400 UJ | 520 U | 470 U |
| Benzo(a)anthracene | 202 | 34.8 | 3,500 J | 2,700 J | 210 J | 4,700 | 410 | 18,000 | 11,000 J | 6,200 J | 300 J | 470 U |
| Chrysene | 271 | 235 | 7,700 J | 4,000 J | 370 J | 5,900 | 490 | 21,000 | 16,000 J | 8,700 J | 360 J | 470 U |
| bis(2-Ethylhexyl)phthalate | NA | NA | 2,200 J | 730 J | 460 J | 870 J | 440 | 2,400 | 1,600 J | 0.730 J | 170 J | 53 J |
| Di-n-Octylphthalate | NA | NA | 480 U | 430 U | 560 U | 2,100 U | 400 U | 160 J | 410 UJ | 400 UJ | 520 U | 470 U |
| Benzo(b)fluoranthene | 243 | 198 | 10,000 | 2,400 | 510 J | 7,200 | 400 U | 33,000 | 15,000 J | 8,300 J | 610 X | 470 U |
| Benzo(k)fluoranthene | 108 | ND | 3,500 | 3,000 | 580 | 8,100 | 400 U | 7,600 | 6,400 J | 4,900 J | 520 XJ | 470 U |
| Benzo(a)pyrene | 246 | 128 | 5,800 | 2,900 | 260 J | 4,500 | 400 UJ | 25,000 | 12,000 J | 6,600 J | 360 J | 470 U |
| Indeno(1,2,3-cd)pyrene | 128 | 101 | 650 | 2,100 | 280 J | 3,200 | 400 U | 9,700 | 4,900 J | 2,400 J | 220 J | 470 U |
| Dibenzo(a,h)anthracene | 44.1 | 145 | 480 U | 430 U | 87 J | 1,100 J | 400 U | 430 U | 410 UJ | 2,000 UJ | 520 U | 470 U |

Table 5

Summary of Historical Analytical Results
Pettibone Creek Investigation
North Chicago, Lake County, Illinois

| Sample ID | Ditch-1A | Ditch-1B | SED 1-1 | SED 1-2 | SED1007 | SED1008 | X210 | SED 2-1 | SED 3-1 | SED 3-2 | SED 3C-1 | SED 3C-2 |
|--|-----------|----------|----------|-----------|----------|----------|-----------|----------|----------|-----------|----------|-----------|
| Depth | 0" - 6" | 6" - 12" | 0" - 12" | 12" - 24" | 0" - 6" | 0" - 6" | 0" - 6" | 0" - 12" | 0" - 12" | 12" - 24" | 0" - 12" | 12" - 24" |
| Date | 6/7/00 | 6/7/00 | 1/1/97 | 1/1/97 | 10/24/00 | 10/24/00 | 4/26/94 | 1/1/97 | 1/1/97 | 1/1/97 | 1/1/97 | 1/1/97 |
| Source | Carlson | Carlson | VL EE/CA | VL EE/CA | TN&A | TN&A | IEPA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA |
| Parameter | Section 1 | | | | | | Section 2 | | | | | |
| Benzo(g,h,i)perylene | 187 | 135 | 4,400 | 2,200 | 300 J | 2,800 | 400 U | 9,600 | 4,900 J | 2,400 J | 190 J | 470 U |
| PESTICIDES/PCBs (units = µg/kg) | | | | | | | | | | | | |
| alpha-BHC | NA | NA | 12 U | 11 U | 2.9 U | 3.4 J | 2.1 U | 11 U | 10 U | 10 U | 0.27 U | 2.4 U |
| beta-BHC | NA | NA | 12 U | 11 U | 0.94 J | 4.0 J | 2.1 U | 11 U | 10 U | 10 U | 0.27 U | 2.4 U |
| delta-BHC | NA | NA | 12 U | 11 U | 2.9 UJ | 4.2 J | 2.1 U | 11 U | 10 U | 10 U | 0.19 JP | 2.4 U |
| gamma-BHC (Lindane) | NA | NA | 12 U | 11 U | 2.9 U | 2.2 U | 2.1 U | 11 U | 10 R | 10 U | 0.27 U | 0.09 J |
| Heptachlor | NA | NA | 12 U | 11 U | 2.9 U | 2.2 U | 2.1 U | 11 U | 10 R | 10 U | 0.27 U | 0.22 J |
| Aldrin | NA | NA | 12 U | 11 U | 2.9 U | 2.2 U | 2.1 U | 11 U | 10 R | 10 U | 0.14 JP | 2.4 U |
| Heptachlor epoxide | NA | NA | 12 U | 11 U | 7.3 J | 2.4 J | 2.1 U | 11 U | 10 U | 10 U | 0.29 JP | 2.4 U |
| Endosulfan I | NA | NA | 79 U | 11 U | 2.9 U | 0.59 J | 2.1 U | 230 | 10 U | 170 | 270 U | 2.4 U |
| Dieldrin | NA | NA | 24 U | 22 U | 5.6 U | 5.2 J | 0.6 JP | 22 U | 20 R | 20 U | 8.1 P | 0.57 J |
| 4,4'-DDE | NA | NA | 82 | 52 | 11 J | 11 J | 4.1 U | 220 U | 150 | 150 | 13 P | 4.7 U |
| Endrin | NA | NA | 24 U | 22 U | 5.6 U | 4.3 U | 6.0 P | 22 U | 20 R | 20 U | 5.2 U | 4.7 U |
| Endosulfan II | NA | NA | 28 | 24 U | 5.6 U | 4.3 U | 4.1 U | 220 U | 26 | 45 | 5.2 U | 4.7 U |
| 4,4'-DDD | NA | NA | 51 | 37 U | 3.6 J | 7.2 J | 5.7 P | 35 | 130 | 130 | 5.2 U | 4.7 U |
| Endosulfan sulfate | NA | NA | 24 U | 22 U | 5.6 U | 9.0 J | 4.1 U | 22 U | 20 U | 20 U | 1.3 JP | 4.7 U |
| 4,4'-DDT | NA | NA | 180 | 110 | 9.3 J | 28 J | 4.1 U | 68 | 930 | 490 | 32 PB | 4.7 U |
| Methoxychlor | NA | NA | 120 U | 110 U | 29 | 53 J | 21 U | 110 U | 100 U | 100 U | 4.6 JP | 24 U |
| Endrin ketone | NA | NA | 72 | 22 U | 5.6 U | 14 J | 4.1 U | 220 U | 20 | 20 U | 5.2 U | 6.6 |
| Endrin aldehyde | NA | NA | 62 | 42 | 5.6 U | 6.4 J | 6.1 P | 220 | 80 | 190 | 5.2 U | 4.7 U |
| alpha-Chlordane | NA | NA | 12 U | 11 U | 43 J | 3.9 J | 2.4 | 11 U | 10 U | 10 U | 270 U | 2.4 U |
| gamma-Chlordane | NA | NA | 21 | 11 U | 24 | 5.2 J | 1.7 JP | 14 | 10 U | 10 U | 4.9 P | 2.4 U |
| Toxaphene | NA | NA | 1,200 U | 1,100 U | 290 U | 220 U | 210 U | 1,100 U | 1,000 U | 1,000 U | 270 U | 240 U |
| Aroclor-1016 | ND | ND | 24 U | 22 U | 56 U | 43 U | 41 U | 220 U | 200 U | 200 U | 52 U | 47 U |
| Aroclor-1221 | ND | ND | 490 U | 440 U | 110 U | 87 U | 82 U | 440 U | 410 U | 400 U | 52 U | 96 U |
| Aroclor-1232 | ND | ND | 24 U | 22 U | 56 U | 43 U | 41 U | 220 U | 200 U | 200 U | 52 U | 47 U |
| Aroclor-1242 | ND | ND | 24 U | 22 U | 56 U | 43 U | 41 U | 220 U | 200 U | 200 U | 52 U | 47 U |
| Aroclor-1248 | ND | ND | 24 U | 22 U | 56 U | 43 U | 41 U | 220 U | 200 U | 200 U | 52 U | 47 U |
| Aroclor-1254 | ND | ND | 24 U | 22 U | 56 U | 43 U | 69.0 | 2,200 U | 2,000 U | 200 U | 52 U | 47 U |
| Aroclor-1260 | 36.5 | 42.6 | 590 | 300 | 56 U | 43 U | 41 U | 120 J | 1,100 | 2,000 | 180 | 47 U |
| INORGANICS (units = mg/kg) | | | | | | | | | | | | |
| Aluminum | 6610 G | 6410 G | 8,420 | 7,000 | 8,050 | 4,450 | 10,100 | 3,050 | 6,250 | 7,820 | 9,180 | 14,200 |
| Antimony | ND | ND | 1.6 J | 1.5 J | 0.95 J | 1.9 J | ND | 0.65 J | 2.4 J | 7.0 J | 6.1 B | 1.5 B |
| Arsenic | 15.1 | 11.3 | 22.4 | 38 | 13.2 | 34.9 | 8.5 J | 2.5 | 15.8 | 14 | 18.6 | 9.9 |

Table 5

Summary of Historical Analytical Results
Pettibone Creek Investigation
North Chicago, Lake County, Illinois

| Sample ID | Ditch-1A | Ditch-1B | SED 1-1 | SED 1-2 | SED1007 | SED1008 | X210 | SED 2-1 | SED 3-1 | SED 3-2 | SED 3C-1 | SED 3C-2 |
|-----------|------------------|----------|----------|-----------|----------|----------|---------|------------------|----------|-----------|----------|-----------|
| Depth | 0" - 6" | 6" - 12" | 0" - 12" | 12" - 24" | 0" - 6" | 0" - 6" | 0" - 6" | 0" - 12" | 0" - 12" | 12" - 24" | 0" - 12" | 12" - 24" |
| Date | 6/7/00 | 6/7/00 | 1/1/97 | 1/1/97 | 10/24/00 | 10/24/00 | 4/26/94 | 1/1/97 | 1/1/97 | 1/1/97 | 1/1/97 | 1/1/97 |
| Source | Carlson | Carlson | VL EE/CA | VL EE/CA | TN&A | TN&A | IEPA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA |
| Parameter | Section 1 | | | | | | | Section 2 | | | | |
| Barium | 46 | 49.9 | 56.6 | 55.4 | 221 | 85.1 | 96.1 | 39.7 | 78.3 | 78.3198 | 120 | 58.4 |
| Beryllium | ND | 1.96 | 1 | 0.77 | 0.62 J | 0.81 J | 0.9 B | 2.2 | 1.1 | 0.87 | 1.5 | 0.62 |
| Cadmium | 2.24 | 1.76 | 3.8 | 4 | 0.61 J | 4.3 | ND | 1.7 | 2.6 | 8.4 | 6.6 | 23.1 |
| Calcium | 24,500 G | 32,900 G | 41,100 J | 37,400 J | 48,700 | 50,900 | 83,800 | 58,300 | 34,600 | 29,500 J | 36,000 | 43,400 |
| Chromium | 17.1 B | 22.9 B | 21.3 | 16 | 16.4 | 16.2 | 17.0 | 40.1 | 27.7 | 27.8 | 28.4 | 21 |
| Cobalt | 9.39 | 9.08 | 9.6 | 10 | 14.6 | 10.0 | 8.1 B | 5.4 | 9.7 | 11.1 | 9.2 B | 9.7 B |
| Copper | 322 G | 1070 G | 534 | 388 | 73.4 | 406 | 69.8 | 247 | 538 | 688 | 3,100 | 72 |
| Iron | 18,400 G | 18,600 G | 19,900 | 19,000 | 26,600 | 15,300 | 19,300 | 12,900 | 17,100 | 18,800 | 19,400 | 22,500 |
| Lead | 399 G | 684 G | 544 | 431 | 47.3 | 393 | 48.2 | 259 | 522 | 730 | 1,550 | 204 |
| Magnesium | 14,700 G | 18,700 G | 24,200 | 22,000 | 26,500 | 24,500 | 44,300 | 27,000 | 19,300 | 16,600 | 19,600 | 21,800 |
| Manganese | 385 G | 439 G | 433 | 502 | 2,410 J | 666 J | 616.0 | 351 | 564 | 554 | 1,520 | 403 |
| Mercury | NA | NA | 1.3 | 1.6 | 0.070 J | 0.68 J | ND | 0.07 | 1.2 | 4.3 | 4.5 | 0.14 U |
| Nickel | 24.3 | 41.8 | 31.6 J | 25.9 J | 32.6 J | 30.7 J | 26.1 | 22.2 J | 44.9 J | 51.1 J | 50.6 | 23.9 |
| Potassium | 1760 G | 1,500 G | 1,140 J | 1,120 J | 1,520 J | 1,180 J | 2,880 | 427 J | 1,020 J | 952 J | 2,080 | 3,370 |
| Selenium | 2.14 G | 1.95 G | 1.1 | 1.2 | 0.93 U | 3.8 | ND | 0.57 U | 1.4 | 3.7 J | 1.4 U | 1.9 |
| Silver | ND | ND | 0.97 | 0.81 | 0.47 J | 1.3 J | ND | 0.22 U | 2.1 | 4.9 | 2.0 B | 0.55 U |
| Sodium | 133 G | 278 G | 244 | 206 | 228 J | 317 J | 658.0 B | 1,240 | 334 | 293 | 407 | 426 B |
| Thallium | ND | ND | 0.98 U | 0.86 U | 1.9 U | 2.3 U | 0.3 B | 0.86 U | 0.82 U | 0.83 U | 2.9 U | 2.8 U |
| Vanadium | 22.3 | 21 | 20.9 | 17.9 | 21.8 | 13.2 | 21.2 | 9.2 | 17.1 | 20.7 | 25.4 | 34.5 |
| Zinc | 1690 | 3,810 G | 2,200 | 1,700 | 462 | 2,470 | 820.0 | 2,070 | 1,640 | 1,650 | 4,910 | 6,890 |
| Cyanide | 0.621 B | 5.53 B | NA | NA | 0.49 U | 0.58 U | ND | NA | NA | NA | NA | NA |

Table 6

Summary of Historical Analytical Results
Pettibone Creek Investigation
North Chicago, Lake County, Illinois

| Sample ID | SED3C-3 | SED 4-1 | SED 4-2 | SED 4-3 | SED 5-1 | SED6-1 | SED 7-1 | SED 7-2 | SED-7-3 | SED 7-4 | SED 7-5 |
|--|-------------------|----------|-----------|-----------|----------|----------|----------|-----------|-----------|-----------|-----------|
| Depth | 42" - 48" | 0" - 12" | 12" - 24" | 42" - 48" | 0" - 12" | 0" - 12" | 0" - 12" | 12" - 24" | 24" - 48" | 48" - 72" | 48" - 72" |
| Date | 4/1/97 | 1/1/97 | 1/1/97 | 4/1/97 | 1/1/97 | 1/1/97 | 1/1/97 | 1/1/97 | 4/1/97 | 4/1/97 | 4/1/97 |
| Source | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA |
| Parameter | Section 2 (cont.) | | | | | | | | | | |
| VOLATILES (units = μ | | | | | | | | | | | |
| Chloromethane | NA | 14 U | 12 U | NA | 18 U | 14 U | 55 U | NA | NA | NA | NA |
| Bromomethane | NA | 14 U | 12 U | NA | 18 U | 14 U | 55 U | NA | NA | NA | NA |
| Vinyl Chloride | NA | 14 U | 12 U | NA | 18 U | 14 U | 55 U | NA | NA | NA | NA |
| Chloroethane | NA | 19 | 38 | NA | 18 U | 14 U | 55 U | NA | NA | NA | NA |
| Methylene Chloride | NA | 14 U | 12 UJ | NA | 4 J | 14 U | 55 U | NA | NA | NA | NA |
| Acetone | NA | 10 J | 12 UJ | NA | 100 BU | 14 U | 55 U | NA | NA | NA | NA |
| Carbon Disulfide | NA | 14 U | 12 U | NA | 18 U | 14 U | 55 U | NA | NA | NA | NA |
| 1,1-Dichloroethene | NA | 14 U | 12 U | NA | 18 U | 14 U | 55 U | NA | NA | NA | NA |
| 1,1-Dichloroethane | NA | 14 U | 51 | NA | 18 U | 14 U | 55 U | NA | NA | NA | NA |
| 1,2-Dichloroethene (total) | NA | 14 U | 12 U | NA | 4 J | 10 U | 71 | NA | NA | NA | NA |
| cis-1,2-Dichloroethene | NA | NR | NR | NA | NR | NR | NR | NA | NA | NA | NA |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Chloroform | NA | 14 U | 12 U | NA | 18 U | 14 U | 55 U | NA | NA | NA | NA |
| 1,2-Dichloroethane | NA | 14 U | 12 U | NA | 18 U | 14 U | 55 U | NA | NA | NA | NA |
| 2-Butanone | NA | 14 U | 12 U | NA | 18 U | 14 U | 55 U | NA | NA | NA | NA |
| 1,1,1-Trichloroethane | NA | 14 U | 29 U | NA | 18 U | 14 U | 55 U | NA | NA | NA | NA |
| Carbon tetrachloride | NA | 14 U | 12 U | NA | 18 U | 14 U | 55 U | NA | NA | NA | NA |
| Bromodichloromethane | NA | 14 U | 12 U | NA | 18 U | 14 U | 55 U | NA | NA | NA | NA |
| 1,2-Dichloropropane | NA | 14 U | 12 U | NA | 18 U | 14 U | 55 U | NA | NA | NA | NA |
| Cis-1,3-dichloropropane | NA | 14 U | 12 U | NA | 18 U | 14 U | 55 U | NA | NA | NA | NA |
| Trichloroethene | NA | 14 U | 12 U | NA | 2 J | 9 J | 55 U | NA | NA | NA | NA |
| Dibromochloromethane | NA | 14 U | 12 U | NA | 18 U | 14 U | 55 U | NA | NA | NA | NA |
| 1,1,2-Trichloroethane | NA | 14 U | 12 U | NA | 18 U | 14 U | 55 U | NA | NA | NA | NA |
| Benzene | NA | 6 J | 16 | NA | 18 U | 14 U | 55 U | NA | NA | NA | NA |
| Trans-1,3-dichloropropene | NA | 14 U | 12 U | NA | 18 U | 14 U | 55 U | NA | NA | NA | NA |
| Bromoform | NA | 14 U | 12 U | NA | 18 U | 14 U | 55 U | NA | NA | NA | NA |
| 4-Methyl-2-Pentanone | NA | 14 U | 12 U | NA | 18 U | 14 U | 55 U | NA | NA | NA | NA |
| 2-Hexanone | NA | 14 U | 12 U | NA | 18 U | 14 U | 55 U | NA | NA | NA | NA |
| Tetrachloroethane | NA | 14 U | 12 U | NA | 18 U | 14 U | 55 U | NA | NA | NA | NA |
| Tetrachloroethene | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 1,1,2,2-Tetrachloroethane | NA | 14 U | 12 U | NA | 18 U | 14 U | 55 U | NA | NA | NA | NA |
| Toluene | NA | 6 J | 12 | NA | 18 U | 14 U | 55 U | NA | NA | NA | NA |

Table 6

Summary of Historical Analytical Results
Pettibone Creek Investigation
North Chicago, Lake County, Illinois

| Sample ID | SED3C-3 | SED 4-1 | SED 4-2 | SED 4-3 | SED 5-1 | SED6-1 | SED 7-1 | SED 7-2 | SED-7-3 | SED 7-4 | SED 7-5 |
|-----------------------------|-------------------|----------|-----------|-----------|----------|----------|----------|-----------|-----------|-----------|-----------|
| Depth | 42" - 48" | 0" - 12" | 12" - 24" | 42" - 48" | 0" - 12" | 0" - 12" | 0" - 12" | 12" - 24" | 24" - 48" | 48" - 72" | 48" - 72" |
| Date | 4/1/97 | 1/1/97 | 1/1/97 | 4/1/97 | 1/1/97 | 1/1/97 | 1/1/97 | 1/1/97 | 4/1/97 | 4/1/97 | 4/1/97 |
| Source | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA |
| Parameter | Section 2 (cont.) | | | | | | | | | | |
| Chlorobenzene | NA | 14 U | 12 U | NA | 18 U | 14 U | 55 U | NA | NA | NA | NA |
| Ethylbenzene | NA | 14 U | 12 U | NA | 18 U | 14 U | 55 U | NA | NA | NA | NA |
| Styrene | NA | 14 U | 7 J | NA | 18 U | 14 U | 55 U | NA | NA | NA | NA |
| Xylene (total) | NA | 14 U | 12 U | NA | 18 U | 14 | 55 U | NA | NA | NA | NA |
| SEMIVOLATILES (unit) | | | | | | | | | | | |
| Phenol | BAL | 440 U | 400 U | BAL | 610 U | 12,000 U | 540 UJ | 490 U | BAL | BAL | BAL |
| Bis(2-chloroethyl)ether | BAL | 440 U | 400 U | BAL | 610 U | 12,000 U | 540 UJ | 490 U | BAL | BAL | BAL |
| 2-Chlorophenol | BAL | 440 U | 400 U | BAL | 610 U | 12,000 U | 540 UJ | 490 U | BAL | BAL | BAL |
| 1,3-Dichlorobenzene | BAL | 440 U | 400 U | BAL | 610 U | 12,000 U | 540 UJ | 490 U | BAL | BAL | BAL |
| 1,4-Dichlorobenzene | BAL | 440 U | 400 U | BAL | 610 U | 12,000 U | 540 UJ | 490 U | BAL | BAL | BAL |
| 1,2-Dichlorobenzene | BAL | 440 U | 400 U | BAL | 610 U | 12,000 U | 540 UJ | 490 U | BAL | BAL | BAL |
| 2-Methylphenol | BAL | 440 U | 400 U | BAL | 610 U | 12,000 U | 540 UJ | 490 U | BAL | BAL | BAL |
| 2,2'-Oxybis(1-chloropro | BAL | 440 U | 400 U | BAL | 610 U | 12,000 U | 540 UJ | 490 U | BAL | BAL | BAL |
| 4-Methylphenol | BAL | 160 J | 400 U | BAL | 250 J | 12,000 U | 540 UJ | 490 U | BAL | BAL | BAL |
| N-nitroso-di-n-propylam | BAL | 440 U | 400 U | BAL | 610 U | 12,000 U | 540 UJ | 490 U | BAL | BAL | BAL |
| Hexachloroethane | BAL | 440 U | 400 U | BAL | 610 U | 12,000 U | 540 UJ | 490 U | BAL | BAL | BAL |
| Nitrobenzene | BAL | 440 UJ | 400 U | BAL | 610 U | 12,000 U | 540 UJ | 490 U | BAL | BAL | BAL |
| Isophorone | BAL | 440 UJ | 400 U | BAL | 610 U | 12,000 U | 540 UJ | 490 U | BAL | BAL | BAL |
| 2-Nitrophenol | BAL | 440 UJ | 400 U | BAL | 610 U | 12,000 U | 540 UJ | 490 U | BAL | BAL | BAL |
| 2,4-Dimethylphenol | BAL | 440 UJ | 400 U | BAL | 610 U | 12,000 U | 540 UJ | 490 U | BAL | BAL | BAL |
| Bis(2-chloroethoxy)met | BAL | 440 UJ | 400 U | BAL | 610 U | 12,000 U | 540 UJ | 490 U | BAL | BAL | BAL |
| 2,4-Dichlorophenol | BAL | 440 UJ | 400 U | BAL | 610 U | 12,000 U | 540 UJ | 490 U | BAL | BAL | BAL |
| 1,2,4-Trichlorobenzene | BAL | 440 UJ | 400 U | BAL | 610 U | 12,000 U | 540 UJ | 490 U | BAL | BAL | BAL |
| Naphthalene | BAL | 230 J | 120 J | BAL | 110 J | 12,000 U | 110 J | 99 J | BAL | BAL | BAL |
| 4-Chloroaniline | BAL | 440 UJ | 400 UJ | BAL | 610 U | 12,000 U | 540 UJ | 490 U | BAL | BAL | BAL |
| Hexachlorobutadiene | BAL | 440 UJ | 400 UJ | BAL | 610 U | 12,000 U | 540 UJ | 490 U | BAL | BAL | BAL |
| 4-Chloro-3-methylphen | BAL | 440 UJ | 400 UJ | BAL | 610 U | 12,000 U | 540 UJ | 490 U | BAL | BAL | BAL |
| 2-Methylnaphthalene | BAL | 140 J | 77 J | BAL | 72 J | 12,000 U | 61 J | 490 U | BAL | BAL | BAL |
| Hexachlorocyclopentad | BAL | 440 UJ | 400 UJ | BAL | 610 U | 12,000 U | 540 UJ | 490 U | BAL | BAL | BAL |
| 2,4,6-Trichlorophenol | BAL | 440 UJ | 400 UJ | BAL | 610 U | 12,000 U | 540 UJ | 490 U | BAL | BAL | BAL |
| 2,4,5-Trichlorophenol | BAL | 1,100 UJ | 960 UJ | BAL | 1,500 U | 31,000 U | 1,300 UJ | 1,200 U | BAL | BAL | BAL |
| 2-Chloronaphthalene | BAL | 440 UJ | 400 UJ | BAL | 610 U | 12,000 U | 540 UJ | 490 U | BAL | BAL | BAL |
| 2-Nitroaniline | BAL | 1,100 UJ | 960 UJ | BAL | 1,500 U | 31,000 U | 1,300 UJ | 1,200 U | BAL | BAL | BAL |
| Dimethylphthalate | BAL | 440 UJ | 400 UJ | BAL | 610 U | 12,000 U | 540 UJ | 490 U | BAL | BAL | BAL |

Table 6

Summary of Historical Analytical Results
Pettibone Creek Investigation
North Chicago, Lake County, Illinois

| Sample ID | SED3C-3 | SED 4-1 | SED 4-2 | SED 4-3 | SED 5-1 | SED6-1 | SED 7-1 | SED 7-2 | SED-7-3 | SED 7-4 | SED 7-5 |
|----------------------------|-------------------|----------|-----------|-----------|----------|----------|----------|-----------|-----------|-----------|-----------|
| Depth | 42" - 48" | 0" - 12" | 12" - 24" | 42" - 48" | 0" - 12" | 0" - 12" | 0" - 12" | 12" - 24" | 24" - 48" | 48" - 72" | 48" - 72" |
| Date | 4/1/97 | 1/1/97 | 1/1/97 | 4/1/97 | 1/1/97 | 1/1/97 | 1/1/97 | 1/1/97 | 4/1/97 | 4/1/97 | 4/1/97 |
| Source | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA |
| Parameter | Section 2 (cont.) | | | | | | | | | | |
| Acenaphthylene | BAL | 130 J | 98 J | BAL | 610 U | 12,000 U | 540 UJ | 490 U | BAL | BAL | BAL |
| 2,6-Dinitrotoluene | BAL | 440 UJ | 400 UJ | BAL | 610 U | 12,000 U | 540 UJ | 490 U | BAL | BAL | BAL |
| 3-Nitroaniline | BAL | 1,100 UJ | 960 UJ | BAL | 1,500 U | 31,000 U | 1,300 UJ | 1,200 U | BAL | BAL | BAL |
| Acenaphthene | BAL | 230 J | 210 J | BAL | 230 J | 12,000 U | 310 J | 490 U | BAL | BAL | BAL |
| 2,4-Dinitrophenol | BAL | 1,100 UJ | 960 UJ | BAL | 1,500 U | 31,000 U | 1,300 UJ | 1,200 U | BAL | BAL | BAL |
| 4-Nitrophenol | BAL | 1,100 UJ | 960 UJ | BAL | 1,500 U | 31,000 U | 1,300 UJ | 1,200 U | BAL | BAL | BAL |
| Dibenzofuran | BAL | 440 UJ | 140 J | BAL | 130 J | 12,000 U | 260 J | 140 J | BAL | BAL | BAL |
| 2,4-Dinitrotoluene | BAL | 440 UJ | 400 UJ | BAL | 610 U | 12,000 U | 540 UJ | 490 U | BAL | BAL | BAL |
| Diethylphthalate | BAL | 440 UJ | 400 UJ | BAL | 610 U | 12,000 U | 540 UJ | 490 U | BAL | BAL | BAL |
| 4-Chlorophenyl-phenyle | BAL | 440 UJ | 400 UJ | BAL | 610 U | 12,000 U | 540 UJ | 490 U | BAL | BAL | BAL |
| Fluorene | BAL | 420 J | 410 J | BAL | 200 J | 12,000 U | 560 J | 260 J | BAL | BAL | BAL |
| 4-Nitroaniline | BAL | 1,100 UJ | 960 UJ | BAL | 1,500 U | 31,000 U | 1,300 UJ | 1,200 U | BAL | BAL | BAL |
| 4,6-Dinitro-2-methylphe | BAL | 1,100 UJ | 960 UJ | BAL | 1,500 U | 31,000 U | 1,300 UJ | 1,200 U | BAL | BAL | BAL |
| N-nitrosodiphenylamine | BAL | 440 UJ | 400 UJ | BAL | 610 U | 12,000 U | 540 UJ | 490 U | BAL | BAL | BAL |
| 4-Bromophenyl-phenyle | BAL | 440 UJ | 400 UJ | BAL | 610 U | 12,000 U | 540 UJ | 490 U | BAL | BAL | BAL |
| Hexachlorobenzene | BAL | 440 UJ | 400 UJ | BAL | 610 U | 12,000 U | 540 UJ | 490 U | BAL | BAL | BAL |
| Pentachlorophenol | BAL | 1,100 UJ | 960 UJ | BAL | 1,500 U | 31,000 U | 1,300 UJ | 1,200 U | BAL | BAL | BAL |
| Phenanthrene | BAL | 2,200 J | 4,000 J | BAL | 2,000 | 12,000 U | 2,500 J | 3,900 | BAL | BAL | BAL |
| Anthracene | BAL | 470 J | 740 J | BAL | 320 J | 12,000 U | 510 J | 580 | BAL | BAL | BAL |
| Carbazole | BAL | 320 J | 450 J | BAL | 280 J | 12,000 U | 420 J | 380 J | BAL | BAL | BAL |
| Di-n-Butylphthalate | BAL | 440 UJ | 400 UJ | BAL | 120 J | 12,000 U | 57 J | 490 U | BAL | BAL | BAL |
| Fluoranthrene | BAL | 4,500 J | 6,800 J | BAL | 2,600 | 1,400 J | 3,600 J | 6,200 E | BAL | BAL | BAL |
| Pyrene | BAL | 3,400 J | 4,900 J | BAL | 2,800 | 1,100 J | 610 J | 4,200 E | BAL | BAL | BAL |
| Butylbenzylphthalate | BAL | 440 UJ | 400 UJ | BAL | 610 U | 12,000 U | 230 J | 51 J | BAL | BAL | BAL |
| 3,3'-Dichlorobenzidine | BAL | 440 UJ | 400 UJ | BAL | 610 U | 12,000 U | 540 UJ | 490 U | BAL | BAL | BAL |
| Benzo(a)anthracene | 1,000 | 1,300 J | 2,100 J | 2,200 | 1,200 | 12,000 U | 1,500 J | 1,900 | 1,300 | 1,100 | 940 |
| Chrysene | BAL | 2,200 J | 2,900 J | BAL | 1,700 | 12,000 U | 1,100 J | 2,400 | BAL | BAL | BAL |
| bis(2-Ethylhexyl)phthalate | BAL | 11,000 J | 3,600 J | BAL | 3,800 B | 38,000 | 1,100 J | 480 J | BAL | BAL | BAL |
| Di-n-Octylphthalate | BAL | 440 U | 400 U | BAL | 610 U | 12,000 U | 540 UJ | 490 U | BAL | BAL | BAL |
| Benzo(b)fluoranthene | 1,800 | 1,600 | 1,900 | 2,700 | 2,000 X | 1,100 JX | 1,100 J | 3,500 X | 1,600 | 1,200 | 1,300 |
| Benzo(k)fluoranthene | BAL | 1,400 | 1,800 | BAL | 1,900 X | 1,100 JX | 620 J | 3,000 X | BAL | BAL | BAL |
| Benzo(a)pyrene | 1,200 | 1,400 | 2,000 | 1,900 | 1,100 | 12,000 U | 120 J | 2,000 | 1,200 | 980 | 960 |
| Indeno(1,2,3-cd)pyrene | 980 | 530 | 990 | 1,500 | 770 | 12,000 U | 88 J | 930 | BAL | BAL | BAL |
| Dibenzo(a,h)anthracene | 180 J | 2,200 UJ | 400 U | 300 J | 190 J | 12,000 U | 140 J | 150 J | BAL | BAL | BAL |

Table 6

Summary of Historical Analytical Results
Pettibone Creek Investigation
North Chicago, Lake County, Illinois

| Sample ID | SED3C-3 | SED 4-1 | SED 4-2 | SED 4-3 | SED 5-1 | SED6-1 | SED 7-1 | SED 7-2 | SED-7-3 | SED 7-4 | SED 7-5 |
|-----------------------------|-------------------|----------|-----------|-----------|----------|----------|----------|-----------|-----------|-----------|-----------|
| Depth | 42" - 48" | 0" - 12" | 12" - 24" | 42" - 48" | 0" - 12" | 0" - 12" | 0" - 12" | 12" - 24" | 24" - 48" | 48" - 72" | 48" - 72" |
| Date | 4/1/97 | 1/1/97 | 1/1/97 | 4/1/97 | 1/1/97 | 1/1/97 | 1/1/97 | 1/1/97 | 4/1/97 | 4/1/97 | 4/1/97 |
| Source | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA |
| Parameter | Section 2 (cont.) | | | | | | | | | | |
| Benzo(g,h,i)perylene | BAL | 550 | 1,000 | BAL | 870 | 12,000 U | 540 UJ | 710 | BAL | BAL | BAL |
| PESTICIDES/PCBs (ur) | | | | | | | | | | | |
| alpha-BHC | NA | 11 U | 10 U | NA | 3.1 U | 2.3 U | 2.8 U | 2.5 U | NA | NA | NA |
| beta-BHC | NA | 11 U | 10 U | NA | 3.1 U | 2.3 U | 2.8 U | 2.5 U | NA | NA | NA |
| delta-BHC | NA | 11 U | 10 U | NA | 3.1 U | 2.3 U | 2.8 UJ | 1.1 JP | NA | NA | NA |
| gamma-BHC (Lindane) | NA | 11 U | 10 U | NA | 3.1 U | 2.3 U | 2.8 UJ | 2.5 U | NA | NA | NA |
| Heptachlor | NA | 11 U | 10 U | NA | 3.1 U | 2.3 U | 4.2 | 3.1 | NA | NA | NA |
| Aldrin | NA | 11 U | 10 U | NA | 3.1 U | 0.64 JP | 2.3 J | 2.5 U | NA | NA | NA |
| Heptachlor epoxide | NA | 34 | 14 | NA | 0.69 JP | 2.3 U | 2.8 U | 1.5 JP | NA | NA | NA |
| Endosulfan I | NA | 14 | 10 U | NA | 3.1 U | 2.3 U | 2.8 U | 2.5 U | NA | NA | NA |
| Dieldrin | NA | 22 U | 20 U | NA | 6.1 U | 0.78 JP | 26 J | 18 P | NA | NA | NA |
| 4,4'-DDE | NA | 22 U | 20 U | NA | 1.9 JP | 4.4 U | 8.1 | 9.8 | NA | NA | NA |
| Endrin | NA | 22 U | 20 U | NA | 6.1 U | 5.9 P | 5.4 U | 4.9 U | NA | NA | NA |
| Endosulfan II | NA | 22 U | 20 U | NA | 6.1 U | 5.4 P | 5.4 U | 4.9 U | NA | NA | NA |
| 4,4'-DDD | NA | 33 | 20 U | NA | 6.1 U | 4.4 U | 9.1 | 4.9 U | NA | NA | NA |
| Endosulfan sulfate | NA | 22 U | 20 U | NA | 6.1 U | 4.4 U | 4.4 U | 4.9 U | NA | NA | NA |
| 4,4'-DDT | NA | 22 U | 20 U | NA | 6.1 U | 1.8 JP | 12 | 4.9 U | NA | NA | NA |
| Methoxychlor | NA | 110 U | 100 U | NA | 72 P | 18 JP | 12 J | 5.8 JP | NA | NA | NA |
| Endrin ketone | NA | 22 U | 20 U | NA | 6.1 U | 0.64 JP | 11 | 4.9 U | NA | NA | NA |
| Endrin aldehyde | NA | 35 | 20 U | NA | 0.30 JP | 6.1 P | 2.2 J | 4.9 U | NA | NA | NA |
| alpha-Chlordane | NA | 11 U | 10 U | NA | 12 | 2.1 JP | 12 U | 0.017 | NA | NA | NA |
| gamma-Chlordane | NA | 11 U | 10 U | NA | 3.1 U | 1.8 JP | 2.8 U | 22 P | NA | NA | NA |
| Toxaphene | NA | 1,100 U | 1,000 U | NA | 310 U | 230 U | 280 U | 250 U | NA | NA | NA |
| Aroclor-1016 | NA | 220 U | 200 U | NA | 61 U | 44 U | 54 U | 49 U | NA | NA | NA |
| Aroclor-1221 | NA | 450 U | 400 U | NA | 120 U | 90 U | 110 U | 100 U | NA | NA | NA |
| Aroclor-1232 | NA | 220 U | 200 U | NA | 61 U | 44 U | 54 U | 49 U | NA | NA | NA |
| Aroclor-1242 | NA | 220 U | 200 U | NA | 61 U | 44 U | 54 U | 49 U | NA | NA | NA |
| Aroclor-1248 | NA | 220 U | 200 U | NA | 61 U | 44 U | 54 U | 49 U | NA | NA | NA |
| Aroclor-1254 | NA | 2,000 | 860 | NA | 840 Y | 44 U | 54 U | 49 U | NA | NA | NA |
| Aroclor-1260 | NA | 220 U | 200 U | NA | 61 U | 44 U | 54 U | 150 | NA | NA | NA |
| INORGANICS (units = | | | | | | | | | | | |
| Aluminum | NA | 4,300 | 5,180 | NA | 9,420 | 6,210 | 8,790 | 8,760 | NA | NA | NA |
| Antimony | NA | 4.4 J | 3.4 J | NA | 1.7 U | 3.9 | 2.2 | 1.5 U | NA | NA | NA |
| Arsenic | NA | 8.7 | 9.4 | NA | 12 | 6.6 J | 12.4 J | 11.2 J | NA | NA | NA |

Table 6

Summary of Historical Analytical Results
Pettibone Creek Investigation
North Chicago, Lake County, Illinois

| Sample ID | SED3C-3 | SED 4-1 | SED 4-2 | SED 4-3 | SED 5-1 | SED6-1 | SED 7-1 | SED 7-2 | SED-7-3 | SED 7-4 | SED 7-5 |
|-----------|-------------------|----------|-----------|-----------|----------|----------|----------|-----------|-----------|-----------|-----------|
| Depth | 42" - 48" | 0" - 12" | 12" - 24" | 42" - 48" | 0" - 12" | 0" - 12" | 0" - 12" | 12" - 24" | 24" - 48" | 48" - 72" | 48" - 72" |
| Date | 4/1/97 | 1/1/97 | 1/1/97 | 4/1/97 | 1/1/97 | 1/1/97 | 1/1/97 | 1/1/97 | 4/1/97 | 4/1/97 | 4/1/97 |
| Source | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA | VL EE/CA |
| Parameter | Section 2 (cont.) | | | | | | | | | | |
| Barium | NA | 48.1 | 46.4 | NA | 202 | 120 | 85.6 | 80.4 | NA | NA | NA |
| Beryllium | NA | 0.38 | 0.35 | NA | 2.2 | 0.6 | 0.84 | 3 | NA | NA | NA |
| Cadmium | NA | 3.2 | 1.6 | NA | 4.8 | 2.3 | 1.3 | 0.37 U | NA | NA | NA |
| Calcium | NA | 26,200 | 63,800 J | NA | 46,700 | 68,900 | 52,100 | 42,800 | NA | NA | NA |
| Chromium | NA | 13.6 | 13.1 | NA | 39.7 | 24.3 | 47.5 | 20 | NA | NA | NA |
| Cobalt | NA | 6.8 | 6.9 | NA | 10.3 B | 8.9 | 7.8 | 7.7 | NA | NA | NA |
| Copper | NA | 970 | 707 | NA | 1.65 | 1,420 | 378 | 554 | NA | NA | NA |
| Iron | NA | 12,500 | 17,000 | | 25,100 | 20,400 | 20,000 | 19,000 | NA | NA | NA |
| Lead | BAL | 683 | 784 | BAL | 1,040 | 1,040 | 854 | 506 | BAL | BAL | BAL |
| Magnesium | NA | 15,000 | 23,000 | NA | 25,550 | 36,600 | 28,100 | 22,000 | NA | NA | NA |
| Manganese | NA | 221 | 348 | NA | 426 | 379 J | 310 J | 408 | NA | NA | NA |
| Mercury | NA | 6.5 | 4.4 | NA | 1.3 | 0.54 | 0.4 | 0.26 | NA | NA | NA |
| Nickel | NA | 23.3 J | 20.0 J | NA | 74.1 | 31 | 31.1 | 36.1 | NA | NA | NA |
| Potassium | NA | 658 J | 888 J | NA | 1,840 B | 946 | 1,580 J | 1,180 J | NA | NA | NA |
| Selenium | NA | 0.74 | 0.59 U | NA | 2.2 U | 1.5 U | 1.6 U | 1.8 U | NA | NA | NA |
| Silver | NA | 3.3 | 0.44 | NA | 2.7 B | 0.98 | 0.921 | 0.73 U | NA | NA | NA |
| Sodium | NA | 402 | 499 | NA | 2,670 | 1,090 | 914 | 2,110 | NA | NA | NA |
| Thallium | NA | 0.90 U | 0.90 U | NA | 4.3 U | 3 | 3.2 U | 3.7 U | NA | NA | NA |
| Vanadium | NA | 12.8 | 14.7 | NA | 22.8 | 15.2 | 23.9 | 16.1 | NA | NA | NA |
| Zinc | NA | 2,200 | 2,540 | NA | 5,270 | 4,890 | 1,230 | 4,270 J | NA | NA | NA |
| Cyanide | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

Table 6

Summary of Historical Analytical Results
Pettibone Creek Investigation
North Chicago, Lake County, Illinois

| Sample ID | X208 | X209 | SED-300A | SED-300B | SED-600A | SED-600B | SED-900A | SED-900B | SED1001 | SED1002 | SED1003 |
|--|-----------|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Depth | 0" - 6" | 8" - 9" | 0" - 6" | 6" - 12" | 0" - 6" | 6" - 12" | 0" - 6" | 6" - 12" | Surface | Surface | 0" - 6" |
| Date | 4/26/94 | 4/26/94 | 6/7/00 | 6/7/00 | 6/7/00 | 6/7/00 | 6/7/00 | 6/7/00 | 10/24/00 | 10/24/00 | 10/24/00 |
| Source | IEPA | IEPA | Carlson | Carlson | Carlson | Carlson | Carlson | Carlson | TN&A | TN&A | TN&A |
| Parameter | Section 3 | | | | | | | | | | |
| VOLATILES (units = μg/L) | | | | | | | | | | | |
| Chloromethane | 13 U | 12 U | ND | ND | ND | ND | ND | ND | 12 U | 14 U | 12 U |
| Bromomethane | 13 U | 12 U | ND | ND | ND | ND | ND | ND | 12 U | 14 U | 12 U |
| Vinyl Chloride | 13 U | 30 | 88.2 | 92 | 5.26 | 34.7 | ND | ND | 12 U | 14 U | 12 U |
| Chloroethane | 13 U | 12 U | ND | ND | ND | ND | ND | ND | 12 U | 14 U | 12 U |
| Methylene Chloride | 13 U | 12 U | 23.2 G | 17.4 G | 88.7 G | 190 G | 30.5 G | 169 G | 2 J | 2 J | 2 J |
| Acetone | 5.0 J | 5 J | ND | ND | ND | ND | ND | ND | 12 U | 14 U | 12 U |
| Carbon Disulfide | 13 U | 12 U | 5.7 G | ND | 10.2 G | 27.2 G | ND | ND | 12 UJ | 14 UJ | 12 UJ |
| 1,1-Dichloroethene | 13 U | 12 U | ND | ND | ND | ND | ND | ND | 12 U | 14 U | 12 U |
| 1,1-Dichloroethane | 13 U | 12 U | ND | ND | ND | ND | ND | ND | 12 U | 14 U | 12 U |
| 1,2-Dichloroethene (total) | 25.0 | 25 | NA | NA | NA | NA | NA | NA | NR | NR | NR |
| cis-1,2-Dichloroethene | NR | NR | 184 | 80.4 | 30.6 | ND | ND | 70.5 | 12 U | 14 U | 2 J |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | NA | NA | ND | ND | ND | ND | ND | ND | 12 U | 14 U | 12 U |
| Chloroform | 13 U | 12 U | ND | ND | ND | ND | ND | ND | 12 U | 14 U | 12 U |
| 1,2-Dichloroethane | 13 U | 12 U | ND | ND | ND | ND | ND | ND | 12 U | 14 U | 12 U |
| 2-Butanone | 13 UJ | 12 UJ | ND | ND | ND | ND | ND | ND | 12 U | 14 U | 12 U |
| 1,1,1-Trichloroethane | 13 U | 12 U | ND | ND | ND | ND | ND | ND | 12 U | 14 U | 12 U |
| Carbon tetrachloride | 13 U | 12 U | ND | ND | ND | ND | ND | ND | 12 U | 14 U | 12 U |
| Bromodichloromethane | 13 U | 12 U | ND | ND | ND | ND | ND | ND | 12 U | 14 U | 12 U |
| 1,2-Dichloropropane | 13 U | 12 U | ND | ND | ND | ND | ND | ND | 12 U | 14 U | 12 U |
| Cis-1,3-dichloropropene | 13 U | 12 U | NR |
| Trichloroethene | 8.0 J | 12 U | 5.58 | ND | 14.3 | 7.69 | ND | 24.7 | 2 J | 2 J | 6 J |
| Dibromochloromethane | 13 U | 12 U | ND | ND | ND | ND | ND | ND | 12 U | 14 U | 12 U |
| 1,1,2-Trichloroethane | 13 U | 12 U | ND | ND | ND | ND | ND | ND | 12 U | 14 U | 12 U |
| Benzene | 13 U | 12 U | ND | ND | ND | ND | ND | ND | 12 U | 14 U | 12 U |
| Trans-1,3-dichloropropene | 13 U | 12 U | NR |
| Bromoform | 13 U | 12 U | ND | ND | ND | ND | ND | ND | 12 U | 14 U | 12 U |
| 4-Methyl-2-Pentanone | 13 U | 12 U | ND | ND | ND | ND | ND | ND | 12 U | 14 U | 12 U |
| 2-Hexanone | 13 UJ | 12 UJ | ND | ND | ND | ND | ND | ND | 12 U | 14 U | 12 U |
| Tetrachloroethane | NA | NA | NA | NA | NA | NA | NA | NA | 12 U | 14 U | 12 U |
| Tetrachloroethene | 13 U | 12 U | 336 | 47.6 | 25.8 | 18.4 | 106 | ND | NA | NA | NA |
| 1,1,2,2-Tetrachloroethane | 13 U | 12 U | ND | ND | ND | ND | ND | ND | 12 U | 14 U | 12 U |
| Toluene | 13 U | 12 U | ND | ND | ND | ND | ND | ND | 12 U | 14 U | 12 U |

Table 6

Summary of Historical Analytical Results
Pettibone Creek Investigation
North Chicago, Lake County, Illinois

| Sample ID | X208 | X209 | SED-300A | SED-300B | SED-600A | SED-600B | SED-900A | SED-900B | SED1001 | SED1002 | SED1003 |
|----------------------------|------------------|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Depth | 0" - 6" | 8" - 9" | 0" - 6" | 6" - 12" | 0" - 6" | 6" - 12" | 0" - 6" | 6" - 12" | Surface | Surface | 0" - 6" |
| Date | 4/26/94 | 4/26/94 | 6/7/00 | 6/7/00 | 6/7/00 | 6/7/00 | 6/7/00 | 6/7/00 | 10/24/00 | 10/24/00 | 10/24/00 |
| Source | IEPA | IEPA | Carlson | Carlson | Carlson | Carlson | Carlson | Carlson | TN&A | TN&A | TN&A |
| Parameter | Section 3 | | | | | | | | | | |
| Chlorobenzene | 13 U | 12 U | ND | ND | ND | ND | ND | ND | 12 U | 14 U | 12 U |
| Ethylbenzene | 13 U | 12 U | ND | ND | ND | ND | ND | ND | 12 U | 14 U | 12 U |
| Styrene | 13 U | 12 U | ND | ND | ND | ND | ND | ND | 12 U | 14 U | 12 U |
| Xylene (total) | 13 U | 12 U | ND | ND | ND | ND | ND | ND | 12 U | 14 U | 12 U |
| SEMIVOLATILES (unit | | | | | | | | | | | |
| Phenol | 410 U | 390 U | NA | NA | NA | NA | NA | NA | 810 U | 900 U | 800 U |
| Bis(2-chloroethyl)ether | 410 U | 390 U | NA | NA | NA | NA | NA | NA | 810 U | 900 U | 800 U |
| 2-Chlorophenol | 410 U | 390 U | NA | NA | NA | NA | NA | NA | 810 U | 900 U | 800 U |
| 1,3-Dichlorobenzene | 410 U | 390 U | NA |
| 1,4-Dichlorobenzene | 410 U | 390 U | NA |
| 1,2-Dichlorobenzene | 410 U | 390 U | NA |
| 2-Methylphenol | 410 U | 390 U | NA | NA | NA | NA | NA | NA | 810 U | 900 U | 800 U |
| 2,2'-Oxybis(1-chloropro | 410 U | 390 U | NA | NA | NA | NA | NA | NA | 810 U | 900 U | 800 U |
| 4-Methylphenol | 410 U | 390 U | NA | NA | NA | NA | NA | NA | 810 U | 900 U | 800 U |
| N-nitroso-di-n-propylam | 410 U | 390 U | NA | NA | NA | NA | NA | NA | 810 U | 900 U | 800 U |
| Hexachloroethane | 410 U | 390 U | NA | NA | NA | NA | NA | NA | 810 U | 900 U | 800 U |
| Nitrobenzene | 410 U | 390 U | NA | NA | NA | NA | NA | NA | 810 U | 900 U | 800 U |
| Isophorone | 410 U | 390 U | NA | NA | NA | NA | NA | NA | 810 U | 900 U | 800 U |
| 2-Nitrophenol | 410 U | 390 U | NA | NA | NA | NA | NA | NA | 810 U | 900 U | 800 U |
| 2,4-Dimethylphenol | 410 U | 390 U | NA | NA | NA | NA | NA | NA | 810 U | 900 U | 800 U |
| Bis(2-chloroethoxy)met | 410 U | 390 U | NA | NA | NA | NA | NA | NA | 810 U | 900 U | 800 U |
| 2,4-Dichlorophenol | 410 U | 390 U | NA | NA | NA | NA | NA | NA | 810 U | 900 U | 800 U |
| 1,2,4-Trichlorobenzene | 410 U | 390 U | ND | ND | ND | ND | ND | 5.12 G | NA | NA | NA |
| Naphthalene | 410 U | 390 U | ND | 500 | ND | ND | ND | ND | 810 U | 900 U | 480 J |
| 4-Chloroaniline | 410 UJ | 390 UJ | NA | NA | NA | NA | NA | NA | 810 U | 900 U | 800 U |
| Hexachlorobutadiene | 410 U | 390 U | NA | NA | NA | NA | NA | NA | 810 U | 900 U | 800 U |
| 4-Chloro-3-methylphen | 410 U | 390 U | NA | NA | NA | NA | NA | NA | 810 U | 900 U | 800 U |
| 2-Methylnaphthalene | 410 U | 93 J | NA | NA | NA | NA | NA | NA | 810 UJ | 900 UJ | 250 J |
| Hexachlorocyclopentad | 410 U | 390 U | NA | NA | NA | NA | NA | NA | 810 U | 900 U | 800 U |
| 2,4,6-Trichlorophenol | 410 U | 390 U | NA | NA | NA | NA | NA | NA | 810 U | 900 U | 800 U |
| 2,4,5-Trichlorophenol | 1000 U | 960 U | NA | NA | NA | NA | NA | NA | 2,000 U | 2,300 U | 2,000 U |
| 2-Chloronaphthalene | 410 U | 390 U | NA | NA | NA | NA | NA | NA | 810 U | 900 U | 800 U |
| 2-Nitroaniline | 1000 U | 960 U | NA | NA | NA | NA | NA | NA | 2,000 U | 2,300 U | 2,000 U |
| Dimethylphthalate | 410 U | 390 U | NA | NA | NA | NA | NA | NA | 810 U | 900 U | 800 U |

Table 6

Summary of Historical Analytical Results
Pettibone Creek Investigation
North Chicago, Lake County, Illinois

| Sample ID | X208 | X209 | SED-300A | SED-300B | SED-600A | SED-600B | SED-900A | SED-900B | SED1001 | SED1002 | SED1003 |
|----------------------------|------------------|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Depth | 0" - 6" | 8" - 9" | 0" - 6" | 6" - 12" | 0" - 6" | 6" - 12" | 0" - 6" | 6" - 12" | Surface | Surface | 0" - 6" |
| Date | 4/26/94 | 4/26/94 | 6/7/00 | 6/7/00 | 6/7/00 | 6/7/00 | 6/7/00 | 6/7/00 | 10/24/00 | 10/24/00 | 10/24/00 |
| Source | IEPA | IEPA | Carlson | Carlson | Carlson | Carlson | Carlson | Carlson | TN&A | TN&A | TN&A |
| Parameter | Section 3 | | | | | | | | | | |
| Acenaphthylene | 410 U | 390 U | ND | 1140 | ND | ND | ND | ND | 810 U | 900 U | 800 U |
| 2,6-Dinitrotoluene | 410 U | 390 U | NA | NA | NA | NA | NA | NA | 810 U | 900 U | 800 U |
| 3-Nitroaniline | 1000 UJ | 960 UJ | NA | NA | NA | NA | NA | NA | 2,000 U | 2,300 U | 2,000 U |
| Acenaphthene | 410 U | 390 U | 2060 | 8780 | 1140 | 656 | ND | 3170 | 410 J | 220 J | 2,800 J |
| 2,4-Dinitrophenol | 1000 U | 960 U | NA | NA | NA | NA | NA | NA | 2,000 U | 2,300 U | 2,000 U |
| 4-Nitrophenol | 1000 U | 960 U | NA | NA | NA | NA | NA | NA | 2,000 UJ | 2,300 UJ | 2,000 UJ |
| Dibenzofuran | 410 U | 390 U | NA | NA | NA | NA | NA | NA | 230 J | 120 J | 1,700 |
| 2,4-Dinitrotoluene | 410 U | 390 U | NA | NA | NA | NA | NA | NA | 810 U | 900 U | 800 U |
| Diethylphthalate | 410 U | 390 U | NA | NA | NA | NA | NA | NA | 810 U | 900 U | 800 U |
| 4-Chlorophenyl-phenyle | 410 U | 390 U | NA | NA | NA | NA | NA | NA | 810 U | 900 U | 800 U |
| Fluorene | 410 U | 390 U | 356 | 2000 | 168 | 72.2 | ND | 594 | 530 J | 320 J | 3,200 |
| 4-Nitroaniline | 1000 UJ | 960 UJ | NA | NA | NA | NA | NA | NA | 2,000 UJ | 2,300 UJ | 2,000 UJ |
| 4,6-Dinitro-2-methylphe | 1000 U | 960 U | NA | NA | NA | NA | NA | NA | 2,000 U | 2,300 U | 2,000 U |
| N-nitrosodiphenylamine | 410 U | 390 U | NA | NA | NA | NA | NA | NA | 810 U | 900 U | 800 U |
| 4-Bromophenyl-phenyle | 410 U | 390 U | NA | NA | NA | NA | NA | NA | 810 U | 900 U | 800 U |
| Hexachlorobenzene | 410 U | 390 U | NA | NA | NA | NA | NA | NA | 810 U | 900 U | 800 U |
| Pentachlorophenol | 1000 U | 960 U | NA | NA | NA | NA | NA | NA | 2,000 U | 2,300 U | 2,000 U |
| Phenanthrene | 410 U | 130 J | 2930 | 12300 | 1270 | 597 | ND | 3900 | 4,000 | 2,800 | 15,000 |
| Anthracene | 410 U | 390 U | 451 | 1410 | 157 | 55.2 | ND | 478 | 780 J | 590 J | 3,700 |
| Carbazole | 410 U | 390 U | NA | NA | NA | NA | NA | NA | 610 J | 420 J | 2,600 J |
| Di-n-Butylphthalate | 410 U | 390 U | NA | NA | NA | NA | NA | NA | 810 U | 900 U | 800 U |
| Fluoranthrene | 410 U | 390 U | 3240 | 10100 | 1540 | 971 | ND | 4220 | 4,900 | 3,500 | 13,000 |
| Pyrene | 410 U | 390 U | 2300 | 6860 | 1150 | 679 | ND | 2870 | 4,300 | 3,300 | 13,000 J |
| Butylbenzylphthalate | 410 U | 390 U | NA | NA | NA | NA | NA | NA | 500 J | 900 U | 800 U |
| 3,3'-Dichlorobenzidine | 410 U | 390 U | NA | NA | NA | NA | NA | NA | 810 UJ | 900 UJ | 800 UJ |
| Benzo(a)anthracene | 410 U | 390 U | 1240 | 3760 | 594 | 355 | ND | 1560 | 1,900 | 1,600 | 5,900 |
| Chrysene | 410 U | 390 U | 1440 | 5020 | 855 | 483 | ND | 2110 | 2,400 | 1,900 | 5,800 |
| bis(2-Ethylhexyl)phthalate | 410 U | 390 U | NA | NA | NA | NA | NA | NA | 1,000 | 740 J | 1700 |
| Di-n-Octylphthalate | 410 U | 390 U | NA | NA | NA | NA | NA | NA | 810 U | 900 U | 800 U |
| Benzo(b)fluoranthene | 410 U | 390 U | 1070 | 3870 | 613 | 372 | ND | 1660 | 3,100 | 2,400 | 7,200 |
| Benzo(k)fluoranthene | 410 U | 390 U | 500 | 1720 | 266 | 162 | ND | 730 | 3,500 | 2,800 | 8,100 |
| Benzo(a)pyrene | 410 U | 390 U | 1130 | 3760 | 594 | 350 | ND | 1670 | 2,000 | 1,500 | 4,900 |
| Indeno(1,2,3-cd)pyrene | 410 U | 390 U | 498 | 1600 | 272 | 173 | ND | 911 | 1,400 | 1,000 | 180 J |
| Dibenzo(a,h)anthracene | 410 U | 390 U | 187 | 900 | 107 | 70.3 | ND | 380 | 430 J | 400 J | 1,100 |

Table 6

Summary of Historical Analytical Results
Pettibone Creek Investigation
North Chicago, Lake County, Illinois

| Sample ID | X208 | X209 | SED-300A | SED-300B | SED-600A | SED-600B | SED-900A | SED-900B | SED1001 | SED1002 | SED1003 | |
|-----------------------------|------------------|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--|
| Depth | 0" - 6" | 8" - 9" | 0" - 6" | 6" - 12" | 0" - 6" | 6" - 12" | 0" - 6" | 6" - 12" | Surface | Surface | 0" - 6" | |
| Date | 4/26/94 | 4/26/94 | 6/7/00 | 6/7/00 | 6/7/00 | 6/7/00 | 6/7/00 | 6/7/00 | 10/24/00 | 10/24/00 | 10/24/00 | |
| Source | IEPA | IEPA | Carlson | Carlson | Carlson | Carlson | Carlson | Carlson | TN&A | TN&A | TN&A | |
| Parameter | Section 3 | | | | | | | | | | | |
| Benzo(g,h,i)perylene | 410 U | 390 U | 757 | 2520 | 423 | 271 | ND | 1200 | 1,300 | 1,000 | 3,000 | |
| PESTICIDES/PCBs (ur) | | | | | | | | | | | | |
| alpha-BHC | 2.1 U | 2.1 U | ND | ND | ND | ND | ND | 2.1U | 2.3 U | 2.0 U | | |
| beta-BHC | 2.1 U | 2.1 U | ND | ND | ND | ND | ND | 8.1 J | 4.3 J | 10 J | | |
| delta-BHC | 2.1 U | 2.1 U | ND | ND | ND | ND | ND | 0.86 J | 2.3 UJ | 2.0 UJ | | |
| gamma-BHC (Lindane) | 2.1 U | 2.1 U | ND | ND | ND | ND | ND | 2.1 U | 2.3 U | 2.0 U | | |
| Heptachlor | 2.1 U | 2.1 U | ND | ND | ND | ND | ND | 2.1 U | 2.3 U | 2.0 U | | |
| Aldrin | 2.1 U | 2.1 U | ND | ND | ND | ND | ND | 2.1 U | 2.3 U | 2.0 U | | |
| Heptachlor epoxide | 2.1 U | 2.1 U | ND | ND | ND | ND | ND | 0.70 J | 2.3 U | 4.2 J | | |
| Endosulfan I | 2.1 U | 2.1 U | ND | ND | ND | ND | ND | 2.1 U | 2.3 U | 2.0 U | | |
| Dieldrin | 4.2 U | 4.1 U | ND | ND | ND | ND | ND | 2.2 J | 2.1 J | 8.1 J | | |
| 4,4'-DDE | 4.2 U | 4.1 U | ND | ND | ND | ND | ND | 3.7 J | 2.7 J | 8.6 J | | |
| Endrin | 0.4 JP | 0.7 JP | ND | ND | ND | ND | ND | 11 J | 4.5 U | 50 J | | |
| Endosulfan II | 4.2 U | 4.1 U | ND | ND | ND | ND | ND | 4.1 U | 4.5 U | 4.0 U | | |
| 4,4'-DDD | 4.2 U | 4.1 U | ND | ND | ND | ND | ND | 2.2 J | 1.6 J | 5.2 J | | |
| Endosulfan sulfate | 4.2 U | 4.1 U | ND | ND | ND | ND | ND | 9.0 J | 3.8 J | 40 J | | |
| 4,4'-DDT | 0.5 JP | 0.7 JP | ND | ND | ND | ND | ND | 4.1 UJ | 4.5 UJ | 4.0 UJ | | |
| Methoxychlor | 21 U | 21 U | ND | ND | ND | ND | ND | 21 U | 23 U | 42 J | | |
| Endrin ketone | 4.2 U | 4.1 U | NA | NA | NA | NA | NA | 7.3 J | 2.9 J | 33 J | | |
| Endrin aldehyde | 0.2 JP | 4.1 U | ND | ND | ND | ND | ND | 2.3 J | 4.5 U | 8.2 J | | |
| alpha-Chlordane | 2.1 U | 2.1 U | NR | NR | NR | NR | NR | 2.1 U | 2.3 U | 2.0 U | | |
| gamma-Chlordane | 2.1 U | 2.1 U | NR | NR | NR | NR | NR | 1.1 J | 1.3 J | 2.3 J | | |
| Toxaphene | 210 U | 210 U | ND | ND | ND | ND | ND | 210 U | 230 U | 200 U | | |
| Aroclor-1016 | 42 U | 12 J | ND | ND | ND | ND | ND | 41 U | 45 U | 40 U | | |
| Aroclor-1221 | 85 U | 82 U | ND | ND | ND | ND | ND | 83 U | 92 U | 80 U | | |
| Aroclor-1232 | 42 U | 41 U | ND | ND | ND | ND | ND | 41 U | 45 U | 40 U | | |
| Aroclor-1242 | 42 U | 41 U | ND | ND | ND | ND | ND | 41 U | 45 U | 40 U | | |
| Aroclor-1248 | 42 U | 41 U | ND | ND | ND | ND | ND | 41 U | 45 U | 40 U | | |
| Aroclor-1254 | 42 U | 41 U | ND | ND | ND | ND | ND | 41 U | 45 U | 40 U | | |
| Aroclor-1260 | 10 J | 11 J | 53.1 | 44.4 | 54.9 | 46.9 | ND | ND | 41 U | 45 U | 40 U | |
| INORGANICS (units = | | | | | | | | | | | | |
| Aluminum | 12,800 | 16,000 | 6,080 G | 6,910 G | 5,220 G | 7,860 G | 1,620 G | 2,880 G | 2,500 | 2,790 | 2,430 | |
| Antimony | ND | ND | ND | ND | ND | ND | ND | ND | 0.83 U | 0.75 U | 0.83 U | |
| Arsenic | 17.5 J | 7.1 J | ND | 3.82 | ND | ND | ND | ND | 4.5 | 3.2 | 5.3 | |

Table 6

Summary of Historical Analytical Results
Pettibone Creek Investigation
North Chicago, Lake County, Illinois

| Sample ID | X208 | X209 | SED-300A | SED-300B | SED-600A | SED-600B | SED-900A | SED-900B | SED1001 | SED1002 | SED1003 |
|-----------|------------------|---------|-----------|-----------|-----------|----------|----------|----------|----------|----------|----------|
| Depth | 0" - 6" | 8" - 9" | 0" - 6" | 6" - 12" | 0" - 6" | 6" - 12" | 0" - 6" | 6" - 12" | Surface | Surface | 0" - 6" |
| Date | 4/26/94 | 4/26/94 | 6/7/00 | 6/7/00 | 6/7/00 | 6/7/00 | 6/7/00 | 6/7/00 | 10/24/00 | 10/24/00 | 10/24/00 |
| Source | IEPA | IEPA | Carlson | Carlson | Carlson | Carlson | Carlson | Carlson | TN&A | TN&A | TN&A |
| Parameter | Section 3 | | | | | | | | | | |
| Barium | 104 | 68.6 | 42.1 | 52.2 | 31 | ND | 34.3 | ND | 31.5 | 26.9 | 116 |
| Beryllium | 11.2 | 1.3 | ND | ND | ND | ND | 0.578 | 3.1 J | 3.5 J | 1.3 J | |
| Cadmium | 1.5 | ND | 0.773 | 0.663 | 0.65 | 1.74 | ND | 0.58 J | 10.9 | 1.1 J | |
| Calcium | 85,700 | 76,000 | 160,000 G | 243,000 G | 144,000 G | 61,300 G | 38,100 G | 72,500 G | 106,000 | 71,200 | 98,200 |
| Chromium | 42.2 | 25.3 | 10.6 B | 16.4 B | 20.4 B | 18.8 B | 13.6 B | 33.8 B | 12.4 | 19.3 | 11.7 |
| Cobalt | 13.5 | 11.5 | 6.89 | 19.1 | 6.38 | 11.2 | 8.22 | 6.44 | 3.2 | 3.7 | 4.3 |
| Copper | 2,530 | 106 | 426 G | 174 G | 254 G | 353 G | 18.6 G | 238 G | 452 | 430 | 319 |
| Iron | 36,700 | 23,700 | 29,100 G | 21,100 G | 28,200 G | 15,900 G | 5,760 G | 10,800 G | 10,800 | 12,200 | 12,500 |
| Lead | 1,840 | 46.9 | 517 | 202 G | 234 G | 298 G | 9.96 G | 229 G | 168 | 211 | 283 |
| Magnesium | 38,500 | 39,500 | 86,100 G | 118,000 G | 78,300 G | 31,700 G | 19,300 G | 36,600 G | 60,700 | 39,400 | 52,800 |
| Manganese | 1,110 | 541 | 556 G | 276 G | 501 G | 308 G | 397 G | 415 G | 693 J | 532 J | 613 J |
| Mercury | 0.2 | 1.1 | NA | NA | NA | NA | NA | NA | 0.25 J | 0.23 J | 1.5 J |
| Nickel | 107.0 | 36.1 | 21.2 G | 22.9 | 22.1 | 28.6 | 19.4 | 20.8 | 23.8 J | 27.7 J | 21.9 J |
| Potassium | 1,680 | 4,700 | 404 G | 406 G | 434 G | 397 G | 837 G | 482 G | 415 J | 353 J | 421 J |
| Selenium | 2.2 J | ND | 2.45 G | 0.928 G | 0.865 G | 1.11 G | 0.685 G | 0.639 G | 0.90 U | 0.81 U | 0.90 U |
| Silver | ND | ND | ND | ND | ND | 2.68 G | ND | ND | 0.80 J | 0.92 J | 1.2 J |
| Sodium | 5,540 | 700 B | 491 G | 210 G | 438 G | 258 G | 209 G | 503 G | 1,680 J | 1,740 J | 946 J |
| Thallium | 0.2 B | 0.5 B | ND | ND | ND | ND | ND | ND | 1.8 U | 1.7 U | 1.8 U |
| Vanadium | 22.4 | 29.7 | 12.8 | 12.9 | 17.8 | 11.2 | 19.4 | 11.4 | 6.0 | 5.6 | 7.6 |
| Zinc | 17,000 | 614 | 1,870 G | 607 G | 1,560 | 1,100 | 73.6 | 1,320 | 2,930 | 6,180 | 2,870 |
| Cyanide | ND | ND | 0.427 B | 0.427 B | 0.433 B | 0.573 B | 0.447 B | 0.387 B | 0.47 U | 0.43 U | 0.48 U |

Table 6

Summary of Historical Analytical Results
Pettibone Creek Investigation
North Chicago, Lake County, Illinois

| Sample ID | SED1004 | SED1004DUF | SED1005 | SED1006 | X201 | X202 | X203 | X204 | X205 | X206 | X207 |
|---|--------------------------|------------|----------|----------|---------|------------------|----------|-----------|-----------|---------|---------|
| Depth | Surface | Surface | 0" - 2" | 0" - 2" | 4" - 8" | 4" - 6" | 6" - 16" | 16" - 18" | 16" - 18" | 4" - 8" | 0" - 6" |
| Date | 10/24/00 | 10/24/00 | 10/24/00 | 10/24/00 | 4/26/94 | 4/26/94 | 4/26/94 | 4/26/94 | 4/26/94 | 4/26/94 | 4/26/94 |
| Source | TN&A | TN&A | TN&A | TN&A | IEPA | IEPA | IEPA | IEPA | IEPA | IEPA | IEPA |
| Parameter | Section 3 (cont.) | | | | | Section 4 | | | | | |
| VOLATILES (units = μ) | | | | | | | | | | | |
| Chloromethane | 12 U | 12 U | 11 U | 12 U | 14 U | 14 U | 13 U | 15 U | 15 U | 13 U | 16 U |
| Bromomethane | 12 U | 12 U | 11 U | 12 U | 14 U | 14 U | 13 U | 15 U | 15 U | 13 U | 16 U |
| Vinyl Chloride | 12 U | 12 U | 11 U | 12 U | 14 U | 14 U | 13 U | 15 U | 15 U | 13 U | 16 U |
| Chloroethane | 12 U | 12 U | 11 U | 12 U | 14 U | 14 U | 13 U | 15 U | 15 U | 13 U | 16 U |
| Methylene Chloride | 2 J | 2 J | 3 J | 3 J | 14 U | 14 U | 35 B | 15 U | 15 U | 13 U | 16 U |
| Acetone | 12 U | 12 U | 11 U | 12 U | 23.0 | 12 J | 26 | 16 | 24 J | 7 J | 46 J |
| Carbon Disulfide | 12 UJ | 12 U | 11 UJ | 12 UJ | 4 J | 14 U | 13 U | 15 U | 4 J | 4 J | 4 J |
| 1,1-Dichloroethene | 12 U | 12 U | 11 U | 12 U | 14 U | 14 U | 13 U | 15 U | 15 U | 13 U | 16 U |
| 1,1-Dichloroethane | 12 U | 12 U | 11 U | 12 U | 14 U | 14 U | 13 U | 15 U | 15 U | 13 U | 16 U |
| 1,2-Dichloroethene (total) | NR | NR | NR | NR | 14 U | 14 U | 13 U | 15 U | 15 U | 13 U | 34 |
| cis-1,2-Dichloroethene | 5 J | 2 J | 11 U | 12 U | NR | NR | NR | NR | NR | NR | NR |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | | | | | NA | NA | NA | NA | NA | NA | NA |
| Chloroform | 12 U | 12 U | 11 U | 12 U | 14 UJ | 14 U | 13 U | 15 U | 15 U | 13 U | 16 U |
| 1,2-Dichloroethane | 12 U | 12 U | 11 U | 12 U | 14 U | 14 UJ | 13 U | 15 U | 15 U | 13 U | 16 U |
| 2-Butanone | 12 U | 12 U | 11 U | 12 U | 13.0 J | 5 J | 20 | 7 J | 6 J | 13 UJ | 31 J |
| 1,1,1-Trichloroethane | 12 U | 12 U | 11 U | 12 U | 14 U | 14 U | 13 | 15 U | 15 U | 13 U | 16 U |
| Carbon tetrachloride | 12 U | 12 U | 11 U | 12 U | 14 UJ | 14 UJ | 13 U | 15 U | 15 U | 13 U | 16 U |
| Bromodichloromethane | 12 U | 12 U | 11 U | 12 U | 14 U | 14 U | 13 U | 15 U | 15 U | 13 U | 16 U |
| 1,2-Dichloropropane | 12 U | 12 U | 11 U | 12 U | 14 U | 14 U | 13 U | 15 U | 15 U | 13 U | 16 U |
| Cis-1,3-dichloropropane | NR | NR | NR | NR | 14 U | 14 U | 13 U | 15 U | 15 U | 13 U | 16 U |
| Trichloroethene | 5 J | 3 J | 11 U | 12 U | 14 U | 14 U | 13 U | 15 U | 15 U | 13 U | 13 J |
| Dibromochloromethane | 12 U | 12 U | 11 U | 12 U | 14 U | 14 U | 13 U | 15 U | 15 U | 13 U | 16 U |
| 1,1,2-Trichloroethane | 12 U | 12 U | 11 U | 12 U | 14 U | 14 U | 13 U | 15 U | 15 U | 13 U | 16 U |
| Benzene | 12 U | 12 U | 11 U | 12 U | 14 U | 14 U | 13 U | 15 U | 15 U | 13 U | 16 U |
| Trans-1,3-dichloropropene | NR | NR | NR | NR | 14 U | 14 U | 13 U | 15 U | 15 U | 13 U | 16 U |
| Bromoform | 12 U | 12 U | 11 U | 12 U | 14 U | 14 U | 13 U | 15 U | 15 U | 13 U | 16 U |
| 4-Methyl-2-Pentanone | 12 U | 12 U | 11 U | 12 U | 14 U | 14 U | 13 U | 15 U | 15 U | 13 U | 3 J |
| 2-Hexanone | 12 U | 12 U | 11 U | 12 U | 14 UJ | 14 UJ | 13 U | 15 U | 15 UJ | 13 UJ | 16 UJ |
| Tetrachloroethane | 1 J | 12 U | 1 J | 12 U | NA | NA | NA | NA | NA | NA | NA |
| Tetrachloroethene | NA | NA | NA | NA | 14 U | 14 U | 13 U | 15 U | 15 U | 13 U | 21 |
| 1,1,2,2-Tetrachloroethane | 12 U | 12 U | 11 U | 12 U | 14 U | 14 U | 13 U | 15 U | 15 U | 13 U | 4 J |
| Toluene | 12 U | 12 U | 11 U | 12 U | 14 U | 14 U | 4 J | 15 U | 15 U | 13 U | 12 J |

Table 6

Summary of Historical Analytical Results
Pettibone Creek Investigation
North Chicago, Lake County, Illinois

| Sample ID | SED1004 | SED1004DUF | SED1005 | SED1006 | X201 | X202 | X203 | X204 | X205 | X206 | X207 |
|-----------------------------|--------------------------|------------|----------|----------|---------|---------|------------------|-----------|-----------|---------|---------|
| Depth | Surface | Surface | 0" - 2" | 0" - 2" | 4" - 8" | 4" - 6" | 6" - 16" | 16" - 18" | 16" - 18" | 4" - 8" | 0" - 6" |
| Date | 10/24/00 | 10/24/00 | 10/24/00 | 10/24/00 | 4/26/94 | 4/26/94 | 4/26/94 | 4/26/94 | 4/26/94 | 4/26/94 | 4/26/94 |
| Source | TN&A | TN&A | TN&A | TN&A | IEPA | IEPA | IEPA | IEPA | IEPA | IEPA | IEPA |
| Parameter | Section 3 (cont.) | | | | | | Section 4 | | | | |
| Chlorobenzene | 12 U | 12 U | 11 U | 12 U | 14 U | 14 U | 13 U | 15 U | 15 U | 13 U | 16 U |
| Ethylbenzene | 12 U | 12 U | 11 U | 12 U | 14 U | 14 U | 13 U | 15 U | 15 U | 13 U | 6 J |
| Styrene | 12 U | 12 U | 11 U | 12 U | 14 U | 14 U | 13 U | 15 U | 15 U | 13 U | 3 J |
| Xylene (total) | 12 U | 12 U | 11 U | 12 U | 14 U | 14 U | 6 J | 15 U | 15 U | 13 U | 33 |
| SEMIVOLATILES (unit) | | | | | | | | | | | |
| Phenol | 380 U | 390 U | 380 U | 380 U | 450 U | 440 U | 420 U | 1,900 U | 2,000 U | 420 U | 2,100 U |
| Bis(2-chloroethyl)ether | 380 U | 390 U | 380 U | 380 U | 450 U | 440 U | 420 U | 1,900 U | 2,000 U | 420 U | 2,100 U |
| 2-Chlorophenol | 380 U | 390 U | 380 U | 380 U | 450 U | 440 U | 420 U | 1,900 U | 2,000 U | 420 U | 2,100 U |
| 1,3-Dichlorobenzene | NA | NA | NA | NA | 450 U | 440 U | 420 U | 1,900 U | 2,000 U | 420 U | 2,100 U |
| 1,4-Dichlorobenzene | NA | NA | NA | NA | 450 U | 440 U | 420 U | 1,900 U | 2,000 U | 420 U | 2,100 U |
| 1,2-Dichlorobenzene | NA | NA | NA | NA | 450 U | 440 U | 420 U | 1,900 U | 2,000 U | 420 U | 2,100 U |
| 2-Methylphenol | 380 U | 390 U | 380 U | 380 U | 450 U | 440 U | 420 U | 1,900 U | 2,000 U | 420 U | 2,100 U |
| 2,2'-Oxybis(1-chloropro) | 380 U | 390 U | 380 U | 380 U | 450 U | 440 U | 420 U | 1,900 U | 2,000 U | 420 U | 2,100 U |
| 4-Methylphenol | 380 U | 390 U | 380 U | 380 U | 450 U | 440 U | 420 U | 1,900 U | 2,000 U | 420 U | 820 J |
| N-nitroso-di-n-propylam | 380 U | 390 U | 380 U | 380 U | 450 U | 440 U | 420 U | 1,900 U | 2,000 U | 420 U | 2,100 U |
| Hexachloroethane | 380 U | 390 U | 380 U | 380 U | 450 U | 440 U | 420 U | 1,900 U | 2,000 U | 420 U | 2,100 U |
| Nitrobenzene | 380 U | 390 U | 380 U | 380 U | 450 U | 440 U | 420 U | 1,900 U | 2,000 U | 420 U | 2,100 U |
| Isophorone | 380 U | 390 U | 380 U | 380 U | 450 U | 440 U | 420 U | 1,900 U | 2,000 U | 420 U | 2,100 U |
| 2-Nitrophenol | 380 U | 390 U | 380 U | 380 U | 450 U | 440 U | 420 U | 1,900 U | 2,000 U | 420 U | 2,100 U |
| 2,4-Dimethylphenol | 380 U | 390 U | 380 U | 380 U | 450 U | 440 U | 420 U | 1,900 U | 2,000 U | 420 U | 2,100 U |
| Bis(2-chloroethoxy)met | 380 U | 390 U | 380 U | 380 U | 450 U | 440 U | 420 U | 1,900 U | 2,000 U | 420 U | 2,100 U |
| 2,4-Dichlorophenol | 380 U | 390 U | 380 U | 380 U | 450 U | 440 U | 420 U | 1,900 U | 2,000 U | 420 U | 2,100 U |
| 1,2,4-Trichlorobenzene | NA | NA | NA | NA | 450 U | 440 U | 420 U | 1,900 U | 2,000 U | 420 U | 2,100 U |
| Naphthalene | 380 U | 390 U | 380 U | 58 J | 130 J | 170 J | 600 | 1,900 U | 2,000 U | 300 J | 2,100 U |
| 4-Chloroaniline | 380 U | 390 U | 380 U | 380 U | 450 U | 440 U | 420 U | 1,900 UJ | 2,000 UJ | 420 U | 2,100 U |
| Hexachlorobutadiene | 380 U | 390 U | 380 U | 380 U | 450 U | 440 U | 420 U | 1,900 U | 2,000 U | 420 U | 2,100 U |
| 4-Chloro-3-methylphen | 380 U | 390 U | 380 U | 380 U | 450 U | 440 U | 420 U | 1,900 U | 2,000 U | 420 U | 2,100 U |
| 2-Methylnaphthalene | 380 UJ | 390 UJ | 380 UJ | 73 J | 110 J | 160 J | 310 J | 1,900 U | 2,000 U | 120 J | 2,100 U |
| Hexachlorocyclopentad | 380 U | 390 U | 380 U | 380 U | 450 U | 440 U | 420 U | 1,900 U | 2,000 U | 420 U | 2,100 U |
| 2,4,6-Trichlorophenol | 380 U | 390 U | 380 U | 380 U | 450 U | 440 U | 420 U | 1,900 U | 2,000 U | 420 U | 2,100 U |
| 2,4,5-Trichlorophenol | 960 U | 980 U | 940 U | 970 U | 1,100 U | 1,100 U | 1,000 U | 4,700 U | 4,900 U | 1,000 U | 5,000 U |
| 2-Chloronaphthalene | 380 U | 390 U | 380 U | 380 U | 450 U | 440 U | 420 U | 1,900 U | 2,000 U | 420 U | 2,100 U |
| 2-Nitroaniline | 960 U | 980 U | 940 U | 970 U | 1,100 U | 1,100 U | 1,000 U | 4,700 U | 4,900 U | 1,000 U | 5,000 U |
| Dimethylphthalate | 380 U | 390 U | 380 U | 380 U | 450 U | 440 U | 420 U | 1,900 U | 2,000 U | 420 U | 2,100 U |

Table 6

Summary of Historical Analytical Results
Pettibone Creek Investigation
North Chicago, Lake County, Illinois

| Sample ID | SED1004 | SED1004DUF | SED1005 | SED1006 | X201 | X202 | X203 | X204 | X205 | X206 | X207 |
|----------------------------|--------------------------|------------|----------|----------|----------|------------------|----------|-----------|-----------|----------|----------|
| Depth | Surface | Surface | 0" - 2" | 0" - 2" | 4" - 8" | 4" - 6" | 6" - 16" | 16" - 18" | 16" - 18" | 4" - 8" | 0" - 6" |
| Date | 10/24/00 | 10/24/00 | 10/24/00 | 10/24/00 | 4/26/94 | 4/26/94 | 4/26/94 | 4/26/94 | 4/26/94 | 4/26/94 | 4/26/94 |
| Source | TN&A | TN&A | TN&A | TN&A | IEPA | IEPA | IEPA | IEPA | IEPA | IEPA | IEPA |
| Parameter | Section 3 (cont.) | | | | | Section 4 | | | | | |
| Acenaphthylene | 380 U | 390 U | 380 U | 380 U | 450 U | 120 J | 420 U | 1,900 U | 2,000 U | 420 U | 2,100 U |
| 2,6-Dinitrotoluene | 380 U | 390 U | 380 U | 380 U | 450 U | 440 U | 420 U | 1,900 U | 2,000 U | 420 U | 2,100 U |
| 3-Nitroaniline | 960 U | 980 U | 940 U | 970 U | 1,100 U | 1,100 U | 1,000 UJ | 4,700 UJ | 4,900 UJ | 1,000 U | 5,000 UJ |
| Acenaphthene | 50 J | 50 J | 380 U | 150 J | 730 | 440 U | 850 | 1,900 U | 2,000 U | 530 | 2,100 U |
| 2,4-Dinitrophenol | 960 U | 980 U | 940 U | 970 U | 1,100 U | 1,100 U | 1,000 U | 4,700 U | 4,900 U | 1,000 U | 5,000 U |
| 4-Nitrophenol | 960 UJ | 980 UJ | 940 UJ | 970 UJ | 1,100 UJ | 1,100 J | 1,000 UJ | 4,700 U | 4,900 UJ | 1,000 UJ | 5,000 U |
| Dibenzofuran | 380 U | 390 U | 380 U | 260 J | 510 | 130 J | 600 | 1,900 U | 2,000 U | 330 J | 2,100 U |
| 2,4-Dinitrotoluene | 380 U | 390 U | 380 U | 380 U | 450 U | 440 U | 420 U | 1,900 U | 2,000 U | 420 U | 2,100 U |
| Diethylphthalate | 380 U | 390 U | 380 U | 380 U | 450 U | 440 U | 420 U | 1,900 U | 2,000 U | 420 U | 2,100 U |
| 4-Chlorophenyl-phenyle | 380 U | 390 U | 380 U | 380 U | 450 U | 440 U | 420 U | 1,900 U | 2,000 U | 420 U | 2,100 U |
| Fluorene | 110 J | 59 J | 380 U | 190 J | 680 | 220 J | 980 | 1,900 U | 2,000 U | 420 U | 2,100 U |
| 4-Nitroaniline | 960 UJ | 980 UJ | 940 UJ | 970 UJ | 1,100 UJ | 1,100 UJ | 1,000 UJ | 4,700 UJ | 4,900 UJ | 1,000 UJ | 5,000 U |
| 4,6-Dinitro-2-methylphe | 960 U | 980 U | 940 U | 970 U | 1,100 U | 1,100 U | 1,000 U | 4,700 U | 4,900 U | 1,000 U | 2,100 U |
| N-nitrosodiphenylamine | 380 U | 390 U | 380 U | 380 U | 450 U | 440 U | 420 U | 1,900 U | 2,000 U | 420 U | 2,100 U |
| 4-Bromophenyl-phenyle | 380 U | 390 U | 380 U | 380 U | 450 U | 440 U | 420 U | 1,900 U | 2,000 U | 420 U | 2,100 U |
| Hexachlorobenzene | 380 U | 390 U | 380 U | 380 U | 450 U | 440 U | 420 U | 1,900 U | 2,000 U | 420 U | 2,100 U |
| Pentachlorophenol | 960 U | 980 U | 940 U | 970 U | 1,100 U | 1,100 U | 1,000 U | 4,700 U | 4,900 U | 1,000 U | 5,000 U |
| Phenanthrene | 1,100 | 410 | 460 | 2,500 | 45,000 U | 1,100 | 5,700 | 3,100 | 3,100 | 4,800 | 5,000 |
| Anthracene | 400 | 83 J | 95 J | 510 | 840 | 220 J | 1,200 | 1,900 U | 2,000 U | 670 | 2,100 U |
| Carbazole | 110 J | 67 J | 79 J | 380 J | 950 | 220 J | 1,500 | 1,900 U | 2,000 U | 1,200 | 2,100 U |
| Di-n-Butylphthalate | 380 U | 390 U | 380 U | 380 U | 740 | 960 | 980.0 B | 1,100 J | 1,300 J | 680 U | 1,100 J |
| Fluoranthrene | 1,600 | 460 | 670 | 2,100 | 3,100 | 1,600 | 2,000 | 3,000 | 3,100 | 7,200 | 6,700 |
| Pyrene | 1,400 | 430 | 600 | 2,100 | 45,000 U | 1,400 | 1,100 | 2,400 | 2,800 | 6,100 | 4,600 |
| Butylbenzylphthalate | 400 | 390 U | 380 U | 380 U | 420 J | 440 U | 420 U | 1,900 U | 2,000 U | 420 U | 2,100 U |
| 3,3'-Dichlorobenzidine | 380 UJ | 390 UJ | 380 UJ | 380 UJ | 450 U | 440 U | 420 U | 1,900 U | 2,000 U | 420 U | 2,100 UJ |
| Benzo(a)anthracene | 700 | 160 J | 250 J | 1,000 | 2,200 | 880 | 420 U | 1,700 J | 2,000 U | 3,400 | 2,700 |
| Chrysene | 740 | 220 J | 320 J | 1,200 | 2,300 | 870 | 3,800 | 1,900 U | 2,000 U | 3,500 J | 3,300 |
| bis(2-Ethylhexyl)phthalate | 490 | 400 | 360 J | 740 | 300,000 | 560 | 420 U | 1,900 U | 2,000 U | 12,000 | 22,000 |
| Di-n-Octylphthalate | 55 J | 40 J | 59 J | 60 J | 23,000 J | 440 U | 420 UJ | 1,900 UJ | 2,000 UJ | 420 UJ | 2,100 U |
| Benzo(b)fluoranthene | 970 | 300 J | 410 | 1,300 | 450 U | 730 | 420 U | 1,900 U | 2,000 U | 420 U | 4,300 |
| Benzo(k)fluoranthene | 1,100 | 340 J | 460 | 1,500 | 2,300 | 440 U | 3,500 | 1,900 U | 2,000 U | 420 U | 2,800 |
| Benzo(a)pyrene | 630 | 180 J | 260 J | 720 | 450 U | 440 U | 2,500 | 1,900 U | 2,000 U | 2,100 | 3,200 |
| Indeno(1,2,3-cd)pyrene | 450 | 130 J | 190 J | 520 | 450 U | 440 UJ | 420 U | 1,900 U | 2,000 U | 420 U | 2,100 U |
| Dibenzo(a,h)anthracene | 180 J | 390 U | 57 J | 200 J | 450 U | 440 U | 420 UJ | 1,900 UJ | 2,000 UJ | 420 U | 2,100 U |

Table 6

Summary of Historical Analytical Results
Pettibone Creek Investigation
North Chicago, Lake County, Illinois

| Sample ID | SED1004 | SED1004DUF | SED1005 | SED1006 | X201 | X202 | X203 | X204 | X205 | X206 | X207 |
|-----------------------------|--------------------------|------------|----------|----------|----------|---------|------------------|-----------|-----------|---------|---------|
| Depth | Surface | Surface | 0" - 2" | 0" - 2" | 4" - 8" | 4" - 6" | 6" - 16" | 16" - 18" | 16" - 18" | 4" - 8" | 0" - 6" |
| Date | 10/24/00 | 10/24/00 | 10/24/00 | 10/24/00 | 4/26/94 | 4/26/94 | 4/26/94 | 4/26/94 | 4/26/94 | 4/26/94 | 4/26/94 |
| Source | TN&A | TN&A | TN&A | TN&A | IEPA | IEPA | IEPA | IEPA | IEPA | IEPA | IEPA |
| Parameter | Section 3 (cont.) | | | | | | Section 4 | | | | |
| Benzo(g,h,i)perylene | 480 | 190 J | 260 J | 490 | 450 U | 440 U | 420 U | 1,900 U | 2,000 U | 420 U | 2,100 U |
| PESTICIDES/PCBs (ur) | | | | | | | | | | | |
| alpha-BHC | 2.0 U | 2.0 U | 1.9 U | 2.0 U | 2.3 U | 1.2 J | 5.5 P | 25 U | 26 U | 6.0 P | 2.4 U |
| beta-BHC | 3.9 J | 2.9 J | 5.3 J | 1.3 J | 2.3 U | 2.3 U | 2.2 U | 25 U | 26 U | 2.2 U | 2.4 U |
| delta-BHC | 2.0 UJ | 2.0 UJ | 1.9 UJ | 2.0 UJ | 2.3 U | 2.3 U | 2.2 U | 120 P | 26 U | 2.2 U | 2.4 U |
| gamma-BHC (Lindane) | 2.0 U | 2.0 U | 1.9 U | 2.0 U | 2.3 U | 2.3 U | 2.2 U | 25 U | 26 U | 2.2 U | 2.4 U |
| Heptachlor | 2.0 U | 2.0 U | 1.9 U | 2.0 U | 1.3 J | 2.3 U | 2.2 U | 25 U | 26 U | 2.2 U | 2.4 U |
| Aldrin | 2.0 U | 2.0 U | 1.9 U | 2.0 U | 2.3 U | 2.3 U | 2.2 U | 25 U | 26 U | 2.2 U | 2.4 U |
| Heptachlor epoxide | 2.0 U | 2.0 U | 1.9 U | 2.0 U | 2.3 U | 4.0 P | 2.2 U | 25 U | 26 U | 2.2 U | 2.4 U |
| Endosulfan I | 2.0 U | 2.0 U | 1.9 U | 2.0 U | 2.3 U | 2.3 U | 2.2 U | 25 U | 30.0 | 2.2 U | 2.4 U |
| Dieldrin | 3.8 U | 3.9 U | 1.6 J | 3.8 U | 4.8 P | 9.8 P | 12 P | 36 JP | 25 JP | 64 PD | 5.8 P |
| 4,4'-DDE | 1.0 J | 1.5 J | 8.6 | 1.2 J | 4.5 U | 41.0 | 350 | 230 P | 260 P | 360 | 4.7 U |
| Endrin | 3.8 U | 3.9 U | 3.8 U | 3.8 U | 33 P | 9.7 P | 82.0 PD | 210 P | 210 P | 220 PD | 53 P |
| Endosulfan II | 3.8 U | 3.9 U | 3.8 U | 3.8 U | 12 | 4.4 U | 4.3 U | 49 U | 51 U | 4.2 U | 17 |
| 4,4'-DDD | 3.8 UJ | 3.9 UJ | 1.7 J | 3.8 UJ | 26 P | 59.0 | 610 | 3,300 | 3,200 | 460 P | 53 P |
| Endosulfan sulfate | 2.3 J | 3.9 U | 2.1 J | 1.4 J | 4.5 U | 4.4 U | 4.3 U | 49 U | 51 U | 4.2 U | 4.7 U |
| 4,4'-DDT | 3.8 UJ | 3.9 UJ | 3.8 UJ | 3.8 UJ | 42 | 71 | 190 | 170 | 310 | 170 PD | 69 P |
| Methoxychlor | 20 U | 20 U | 19 U | 20 U | 23 | 23 U | 22 U | 250 U | 260 U | 22 U | 24 U |
| Endrin ketone | 2.5 J | 3.9 U | 3.7 J | 3.8 U | 4.5 U | 4.4 U | 4.3 U | 49 U | 51 U | 4.2 U | 4.7 U |
| Endrin aldehyde | 1.2 J | 3.9 U | 3.8 U | 3.8 U | 4.5 U | 4.4 U | 4.3 U | 96 P | 51 U | 4.2 U | 4.7 U |
| alpha-Chlordane | 2.0 U | 2.0 U | 1.9 U | 0.85 J | 1.1 JP | 29.0 | 19.0 | 84.0 | 26 U | 16 | 12 P |
| gamma-Chlordane | 1.8 J | 0.52 J | 0.87 J | 0.54 J | 2.3 U | 16 P | 21.0 P | 36 P | 30 P | 2.2 U | 8.5 P |
| Toxaphene | 200 U | 200 U | 190 U | 200 U | 230 U | 230 U | 220 U | 2,500 U | 2,600 U | 220 U | 240 U |
| Aroclor-1016 | 38 U | 39 U | 38 U | 38 U | 45 U | 44 U | 43 U | 1,300 | 1,600 | 680 P | 47 U |
| Aroclor-1221 | 77 U | 79 U | 76 U | 78 U | 91 U | 89 U | 86 U | 1,000 U | 1,000 U | 85 U | 95 U |
| Aroclor-1232 | 38 U | 39 U | 38 U | 38 U | 45 U | 44 U | 43 U | 490 U | 510 U | 42 U | 47 U |
| Aroclor-1242 | 38 U | 39 U | 38 U | 38 U | 45 U | 44 U | 43 U | 490 U | 510 U | 42 U | 47 U |
| Aroclor-1248 | 38 U | 39 U | 38 U | 38 U | 45 U | 44 U | 43 U | 490 U | 510 U | 42 U | 47 U |
| Aroclor-1254 | 38 U | 39 U | 38 U | 38 U | 270 | 44 U | 1,200 PD | 5,200 PD | 3,300 P | 1,800 D | 650 |
| Aroclor-1260 | 38 U | 39 U | 38 U | 38 U | 310 | 160 | 43 U | 1,400 | 1,700 | 2,800 D | 460 |
| INORGANICS (units = | | | | | | | | | | | |
| Aluminum | 3,630 | 3,630 | 3,190 | 2,480 | 4,320 | 3,740 | 4,180 | 11,600 | 12,400 | 4,830 | 4,450 |
| Antimony | 0.85 U | 0.80 U | 0.83 U | 0.76 U | 14.70 UJ | 10.8 UJ | ND | 15.5 J | ND | ND | ND |
| Arsenic | 19.7 | 15 | 8.4 | 5 | 5.90 J | 6.1 J | 8.8 J | 22.1 | 24.0 | 7.4 | 7.4 J |

Table 6

Summary of Historical Analytical Results
Pettibone Creek Investigation
North Chicago, Lake County, Illinois

| Sample ID | SED1004 | SED1004DUF | SED1005 | SED1006 | X201 | X202 | X203 | X204 | X205 | X206 | X207 |
|-----------|--------------------------|------------|----------|----------|---------|------------------|----------|-----------|-----------|---------|---------|
| Depth | Surface | Surface | 0" - 2" | 0" - 2" | 4" - 8" | 4" - 6" | 6" - 16" | 16" - 18" | 16" - 18" | 4" - 8" | 0" - 6" |
| Date | 10/24/00 | 10/24/00 | 10/24/00 | 10/24/00 | 4/26/94 | 4/26/94 | 4/26/94 | 4/26/94 | 4/26/94 | 4/26/94 | 4/26/94 |
| Source | TN&A | TN&A | TN&A | TN&A | IEPA | IEPA | IEPA | IEPA | IEPA | IEPA | IEPA |
| Parameter | Section 3 (cont.) | | | | | Section 4 | | | | | |
| Barium | 39.9 | 31.9 | 45.0 | 38.0 | 54.90 B | 55.2 | 31.6 B | 208.0 | 167.0 | 48.8 | 50.4 B |
| Beryllium | 4.0 J | 4.2 J | 6.0 J | 1.5 J | 0.46 B | 0.3 B | 0.8 B | 2.4 | 3.0 | 0.6 B | 0.7 B |
| Cadmium | 0.32 J | 0.51 J | 0.66 J | 0.57 J | 1.20 U | 0.8 U | 0.9 B | 4.7 | 5.6 | 0.9 B | 2.3 |
| Calcium | 94,500 | 95,900 | 95,500 | 88,200 | 47,800 | 65,000 | 39,700 | 88,700 | 102,000 | 53,700 | 31,800 |
| Chromium | 10.9 | 8.9 | 14.2 | 7.3 | 9.70 | 13 | 12.9 | 61.6 | 69.2 | 21.6 | 20.8 |
| Cobalt | 6.0 | 5.3 | 3.9 | 5.5 | 7.10 B | 6.9 B | 6.0 B | 18.1 | 15.4 | 5.0 B | 4.1 B |
| Copper | 514 | 378 | 790 | 288 | 38.2 | 16.9 | 159 | 465 | 475.0 | 209.0 | 425.0 |
| Iron | 21,200 | 19,600 | 25,500 | 10,800 | 11,600 | 16,000 | 12,000 | 19,000 | 17,300 | 15,000 | 12,100 |
| Lead | 233 | 234 | 570 | 171 | 146 | 48 | 149 | 392 | 435 | 278 | 167 |
| Magnesium | 56,300 | 56,900 | 52,800 | 45,700 | 23,700 | 36,400 | 20,500 | 24,600 | 29,800 | 28,700 | 15,700 |
| Manganese | 988 J | 584 J | 674 J | 496 J | 345 | 472 | 342 | 2,140 | 2,470 | 378 | 291 |
| Mercury | 0.10 J | 0.10 J | 0.060 UJ | 0.17 J | 0.04 B | 0.1 B | 0.2 | 1.4 | 1.6 | 0.3 | 0.1 B |
| Nickel | 35.7 J | 32.9 J | 46.3 J | 18.1 J | 9.20 B | 10.4 | 24.9 | 216 | 445.0 | 22.9 | 19.4 |
| Potassium | 676 J | 627 J | 469 J | 356 J | 836 B | 1,060 | 885 B | 3350 | 3290.0 | 1190.0 | 636.0 B |
| Selenium | 0.92 U | 0.87 UJ | 1.2 | 0.83 U | 0.27 UJ | 0.2 UJ | ND | 3.5 J | 5.0 J | 0.7 BJ | ND |
| Silver | 0.66 J | 0.57 J | 1.6 J | 0.52 J | 1.20 U | 0.8 U | 1.5 B | 42.1 | 50.8 | 1.8 B | ND |
| Sodium | 2,190 J | 1,770 J | 2,700 J | 1,000 J | 292 B | 227.0 B | 463 B | 765 B | 748.0 B | 273.0 B | 548.0 B |
| Thallium | 1.9 U | 1.8 U | 1.9 U | 1.7 U | 0.27 U | 0.2 U | ND | ND | 0.4 BJ | ND | ND |
| Vanadium | 9.3 | 7.8 | 5.8 | 6.5 | 15 | 13.8 | 14.2 | 25.6 | 26.9 | 15.1 | 12.5 B |
| Zinc | 4,160 | 3,710 | 5,760 | 2,260 | 159 | 83.3 | 664 | 1,160 | 605 | 685 | 1,230 |
| Cyanide | 0.48 U | 0.46 UJ | 0.47 U | 0.44 UJ | 1.20 U | 1.0 U | ND | 3.9 | 4.2 | 2.4 | ND |

Key:

Sample ID: Sample identification

µg/kg: micrograms per kilogram

mg/kg: milligrams per kilogram

0"-6": 0 to 6 inches

NR: Not requested for analysis

NA: Not analyzed

BJ: Estimated value of the compound that was also found in the blank

B: Laboratory contaminant found in blank

J: The analyte is positively identified and the value represents approximate concentration

P: Method qualifier indicates analysis by ICP spectroscopy

JP: Estimated value of the compound that was analyzed by ICP spectroscopy

U: The analyte was not detected above the reported sample quantitation limit

D: Identifies compounds analyzed at a secondary dilution factor

R: The data are unusable

ND: Sample concentration below laboratory detection limit (No detect)

PD: Identifies compounds analyzed at a secondary dilution factor and denotes analysis by ICP spectroscopy

G: Affected by QA/QC obstacles from associated standards, or surrogates, or matrix interferences

UJ: The analyte was not detected above the reported sample quantitation limit, which is approximate, and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample

Carlson: Carlson Environmental, Inc., Fansteel Site Investigation Report Results VL EE/CA: Vacant Lot Engineering Evaluation/Cost Analysis, January 1997 Results

TN&A: T N & Associates, Inc., Pettibone Creek Investigation, October 2000 Results

IEPA: Illinois Environmental Protection Agency, CERCLA Expanded Site Inspection, 1994 Results

5.0 ANALYTICAL RESULTS SUMMARY AND CONCLUSIONS

Analytical Results Summary: Sediment samples SED 1003 (NCRS/North Chicago storm water discharge) and SED 1008 (Railroad ditch) contain the highest SVOC (fluorene, anthracene, pyrene, acenaphthene, chrysene, phenanthrene, benzo(a)anthracene, benzo(a)pyrene, dibenzo(a,h)anthracene, and fluoranthene) contamination at concentrations exceeding the ERM and LEL guidelines. Naphthalene and 2-methylnaphthalene concentrations are above their respective ERL guidelines. Beta-BHC, heptachlor epoxide, dieldrin, 4,4'-DDE, and endrin concentrations in some sediment samples, including SED 1007 (background) and SED1003 samples, are above their respective LEls. Sediment samples SED 1001 and SED 1002, downstream of SED 1003 location, contain pyrene, phenanthrene, benzo(a)anthracene, and dibenzo(a,h) anthracene concentrations above the ERM and LEL guidelines. Sediment sample SED 1006, upstream of SED 1003 location, contains phenanthrene concentration above the ERM and LEL guideline. Several other upstream sediment samples contain fluorene, anthracene, pyrene, chrysene, phenanthrene, benzo(a)anthracene, benzo(a)pyrene, dibenzo(a,h)anthracene, and/or fluoranthene concentrations above the ERL but below the ERM guidelines. Various VOCs and pesticides were detected at low levels in the sediment samples and include methylene chloride, trichloroethylene, tetrachloroethene, and endosulfan sulfate. NSTP approach and Ontario guidelines are not available for these detected compounds.

Review of the organic data illustrates a pattern of SVOC contamination present in the sediment. Some of the highest levels of SVOC contamination is present in sample SED 1003. This sample was collected at the NCRS/City of North Chicago discharge into Pettibone Creek. SVOC's detected in sample SED 1003 include fluorene (3,200 µg/kg), anthracene (3,700 µg/kg), pyrene (13,000 µg/kg), ancenaphthene (2,800 µg/kg), phenanthrene (15,000 µg/kg), benzo(k)fluoranthene (8,100 µg/kg), indeno(1,2,3-cd)pyrene (3,200 µg/kg), benzo(g,h,i)perylene (3,000 µg/kg) chrysene (5,800 µg/kg), dibenzofuran (1,700 µg/kg), fluoranthene (13,000 µg/kg), benzo(a)anthracene (5,900 µg/kg), bis(2-Ethylhexyl)phthalate (1,700 µg/kg), benzo(b)fluoranthene (7,200 µg/kg), benzo(a)pyrene (4,900 µg/kg) and dibenzo(a,h)anthracene (1,100 µg/kg). Many of these compounds were detected above the ERM concentration in SED 1003. Organic compounds remain elevated in samples SED 1001 and SED 1002, collected downstream from sample SED 1003, suggesting the contaminants are migrating downstream

from the outfall. Samples SED 1004, SED 1005 and SED 1006, collected upstream from sample SED 1003, contain lower levels of these contaminants. Sample SED 1007, the background sample, contains levels of SVOCs consistent with the samples collected upstream from the NCRS discharge. Sample SED 1008, collected from the railroad ditch, east of the storm water pipe, north of the railroad tracks, also contained high levels of SVOCs including fluorene (1,100 µg/kg), pyrene (9,100 µg/kg), benzo(k)fluoranthene (8,100 µg/kg), indeno(1,2,3-cd)pyrene (3,200 µg/kg), benzo(g,h,i)perylene (2,800 µg/kg), phenanthrene (8,100 µg/kg), fluoranthene (10,000 µg/kg), benzo(a)anthracene (4,700 µg/kg), chrysene (5,900 µg/kg), indeno(1,2,3-cd)pyrene (3,200 µg/kg), anthracene (2,300 µg/kg), benzo(b)fluoranthene (7,200 µg/kg), benzo(a)pyrene (4,500 µg/kg), and dibenzo(a,h)anthracene (1,100 µg/kg).

Historical analytical results of sediment samples collected from the Pettibone Creek have indicated contamination in the creek sediment. The contamination has included organic and inorganic compounds. Evaluation of historical results with respect to NSTP approach and Ontario guidelines indicate that Section 1 has SVOC contamination. Historical SVOC contamination in Section 1 does not exceed ERM guidelines but does exceed ERL guidelines. Section 3 has similar historical SVOC contamination exceeding the ERL and LEL guidelines. Section 4 has SVOC contamination consistent with the results of Section 3. Section 4 SVOC contamination exceeds the ERL and LEL guidelines.

Conclusions: As mentioned in the Introduction Section, this investigation focused on two site areas; the site area of Section 1 covering EJ&E Railroad ditch, and the site area of Section 3 between south of 22nd Street and Sheridan Road. TN&A's investigation has confirmed the presence of historically identified contamination as well as other contamination. TN&A's sampling effort was primarily focused on verifying if contamination was present in the sediments. As such, only surface (0 to 6 inches) sediment samples were collected. Based on this investigation, as well as historical investigations conducted in the Pettibone Creek, the entire length of the creek beginning with 22nd Street and ending with Sheridan Road (Section 3) is contaminated.

The EJ & E railroad ditch (Section 1) has shown contamination indicating some past or current unknown discharges. Pettibone Creek remediation requires tackling this contamination issue. It is interesting to note that some SVOC concentrations in the railroad ditch are of comparable magnitude with SVOC

concentrations found in Section 3, specifically SED 1003 (NCRS/City of North Chicago discharge location). Elevated SVOC contamination was observed in Section 3. TN&A's sampling in Section 3, based on historical sampling locations, indicated much higher SVOC contamination in sediments than previously observed in this area. The NCRS/City of North Chicago storm water discharge location in the Pettibone Creek had elevated levels of fluorene, anthracene, pyrene, phenanthrene, chrysene, benzo(a)anthracene, and fluoranthene. The vertical extent of contamination has not yet been defined. There are two active discharges into the Pettibone Creek. EMCO discharges north of the 22nd Street (Section 2) and NCRS/City of North Chicago discharges to the south of 22nd Street (Section 3). Any remediation of the creek requires taking into account the future impacts of these discharges to the Pettibone Creek. U.S. EPA conducted a removal action at the Vacant Lot site (Section 2) in 1998 and excavated contaminated sediments from this section of the Pettibone Creek.

In conclusion, Pettibone Creek sediment is contaminated and poses a threat to the benthic organisms in the creek as well as to the benthic organisms in Lake Michigan due to potential sediment migration. The Ontario guidelines, though not a U.S. EPA guidelines document, provides aquatic environment protection, which may be applicable for evaluating Pettibone Creek related contamination in Lake Michigan. Further investigations are needed to characterize various discharges into the Pettibone Creek, define the lateral and vertical extent of contamination at the origin of the creek (Section 1), define the vertical extent of contamination in Section 3 and Section 4, and evaluate actual or potential threats to the benthic community and aquatic environment.

APPENDIX A

VALIDATED ANALYTICAL PACKAGE